Family Guides: Supporting Learning in the 2020-21 School Year

ABOUT THIS GUIDE

Parents and caregivers have always wanted to know more about what their child is learning in school. After all, families are their child's first – and most important – teacher.

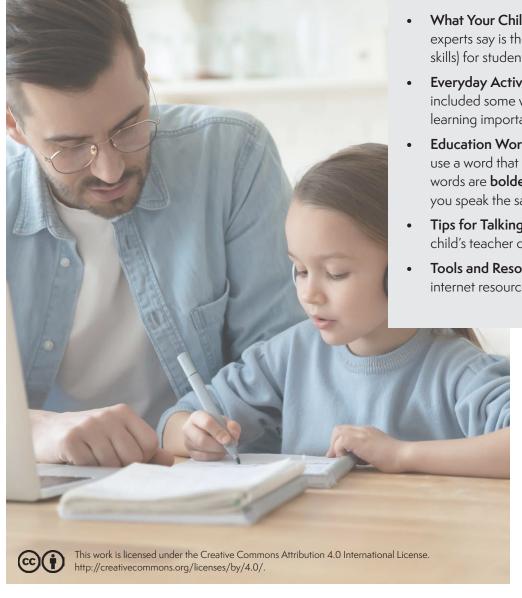
These days, because of the COVID-19 pandemic, children are often learning at home. It's a challenge for all of us. Parents, family members, grandparents, and other caregivers are all pitching in to help children learn. So we include all these people when we talk about how *families* can support kids.

This guide is meant to support families and students academically in literacy and math. Of course, students will be learning other subjects too, but literacy and math are the building blocks for everything else.

GRADE K

THIS GUIDE INCLUDES

- What Your Child Should Know & Be Able to Do What experts say is the most important content (knowledge and skills) for students to learn by the end of kindergarten.
- Everyday Activities to Support Learning We've included some ways you can support your child in learning important content and skills in literacy and math.
- Education Words Sometimes, you'll hear educators
 use a word that has a specific meaning in schools. Those
 words are bolded. Understanding those terms will help
 you speak the same language.
- Tips for Talking with Teachers How you and your child's teacher can work together to help your child grow.
- Tools and Resources to Help We've chosen a few internet resources that best match each grade's content.





STUDENT ACHIEVEMENT PARTNERS



LITERACY

WHAT YOUR CHILD SHOULD KNOW AND BE ABLE TO DO



Throughout the school year, kindergarten students will spend the most time working on the following topics. They should understand them well by the end of the year.

Learning to read and write:

\bigcirc	Playing with language, rhyming, clapping out or counting syllables. Identitying beginning,
_	middle, and end sounds in spoken words.
\bigcirc	Playing with language, rhyming, clapping out, or counting syllables. Identifying beginning middle, and end sounds in spoken words (phonemic/phonological awareness).

- Naming all upper- and lower-case letters. Matching those letters with their sounds. Printing them clearly.
- Matching letters and sounds to sound out and write simple words. Focus on the most common consonant and short vowel sounds. (This may include inventive spelling for writing.)
- Reading and rereading decodable words and sentences in simple texts so the reading is smooth.

Learning about the world through text:*

- Asking and answering questions about stories and texts read aloud. (Children may need some prompting.) Retelling what happened and explaining key ideas.
- Figuring out the meaning of unknown words by using pictures, context, etc. (Children may need support with pronunciation.)
- Showing something new they have learned from text or about a topic. This can be in lots of ways: speaking and conversation, illustrations, letters, journals, stories, posters, or sentences on the page.
- Using a combination of drawing, dictating, and writing to answer a question or describe an event or topic from a text. Children may use simple sentences and some **inventive spelling**.

*The texts used for this purpose are often read aloud since they are more complex than the child could read alone. But texts children can read for themselves (with support as needed) may also be used.



- Read aloud to your child for 20 minutes each day. Talk about what is happening. Ask what they are learning.
- Pick a topic to learn about together. Read books, look online, do things together. You can help your child build knowledge and develop a love of learning.
- Play sound games with your child! Pick a
 letter sound to start as many words as you can
 in a sentence ("My mom makes me move...").
 Make silly words ("big," "boom," "bop," "biz,"
 "baz"). Clap out syllables. Sing songs together
 and call out the rhyming words.
- Identify the sounds in the beginning, middle, and end of spoken words. Separate words into their sounds (/b//a//t/). Then blend them back together ("b-a-t bat!").
- Have your child help with real-world writing. Use starting sounds. Then add ending or middle sounds. ("Let's start the grocery list. What letter should you write to help me remember to buy milk?")



MATHEMATICS

WHAT YOUR CHILD SHOULD KNOW AND BE ABLE TO DO

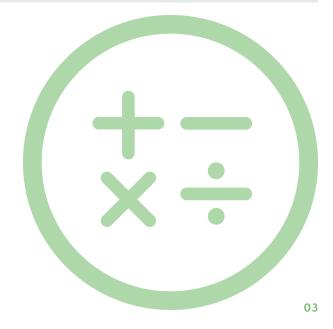


Throughout the school year, kindergarten students will spend the most time working on the following topics. They should understand them well by the end of the year.

- Counting to 10. By the end of the year, children should be able to count to 100.Counting objects to tell how many there are.
- Comparing two groups of objects to tell which group, if either, has more. (Group size of up to 20.)
- O Understanding which of two written numbers between 1 and 10 is greater (6 is greater than 2).
- Acting out addition and subtraction word problems. Drawing pictures to represent and solve the problems.
- Adding with a sum of 10 or less. Subtracting from a number 10 or less.
- \bigcirc Adding and subtracting very small numbers quickly and accurately (3 + 1).



- Gather small similar items to create a "counting collection." Have your child count the items out loud. ("One raisin. Two raisins.") You can use any small object you have at home.
- Ask your child 'how many?' questions.
 ("How many raisins are in this pile? How many in that pile?"). Keep the amounts fairly small, inside the range of counting words your child can say in order.
- Split the collection into two groups to ask greater than/less than/equal to questions. ("Are there more raisins in this group or that one?")
- Ask your child to count objects into piles
 of 10 objects. Begin by asking your child to
 practice rote counting to 10, and then from
 10 to 20. Then practice counting by 10
 to 100 (10, 20, 30...100).





EDUCATION WORDS



Sometimes, you'll hear educators use a word that has a specific meaning in schools. Understanding those terms will help you speak the same language!

Decodable

Decodable texts are those that are connected to sound and spelling patterns that have already been taught, so most words the students read will be ones they can decode based on what they have been taught. (For example, students who have learned the sounds /a/, /c/, and /t/ can decode "cat.")

Inventive spelling

Spelling a word using spelling attempts based on sounds that the child knows to represent each sound. Accurate spelling is less important than ensuring that your child is using what they have been taught, and building up their ability to sound out words when writing.

Phonemic awareness

The ability to recognize that spoken words are made up of individual sounds (or phonemes), and to identify, produce, and play with those individual sounds (a critical part of phonological awareness).

Phonological awareness

The ability to recognize the sounds of language, including rhyme, syllables, and the sounds in words.

Reading level

Teachers often determine the grade level at which a student is reading. But sometimes, children are then limited to reading texts at that level (typically a letter or number). This practice is one to be wary of, particularly if children are limited to reading only texts that are below the grade level goals, or texts that aren't **decodable** and don't match their phonics instruction.

Rote counting

Counting numbers in order (1, 2, 3, 4, 5...).

Sight words

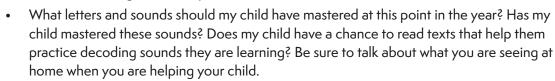
Sight words are any words that a child can read automatically.



TIPS FOR TALKING WITH TEACHERS

Literacy

- What are my child's strengths, and how do you use them in instruction?
- How do you select texts? Will my child see characters and topics that represent them, their background, and their identity? Will they learn new perspectives and about new and diverse characters through the texts you use in the classroom?



- What topics are children learning about through reading? What should my child be able to understand and talk about as a result of what they have read?
- Is my child able to talk, draw, or write in ways that show you they understand what they are reading and learning about? If not, what challenges are they facing?
- What kind of book(s) is my child reading during independent reading? Are they limited to a specific reading level?

- What kinds of number problems are children learning to solve this year?
- Ask for specific updates on how your child is progressing in their understanding of the key content of the grade.
- What should my child be able to understand and talk about as a result of what they
 have learned?
- Is my child able to demonstrate to you that they understand what they are learning about? If not, what challenges are they facing? How can I help?











TOOLS AND RESOURCES TO HELP



Literacy

- How to teach sight words
 https://www.literacyworldwide.org/blog%2Fliteracy-now%2F2016%2F06%2F23%2Fteach-ldquo-sight-words-rdquo-as-you-would-other-words
- How to help your child read and understand https://www.pacer.org/pdf/ge/GE-3.pdf
- These resources include downloadable texts and resources for beginning readers https://www.readingrockets.org/article/decodable-text-sources
- What success in kindergarten reading looks like by the end of the year https://www.greatschools.org/gk/grades/kindergarten/
- What kindergarten writing samples look like from the start of the year to the end https://www.greatschools.org/gk/category/milestones-topics/writing-samples/



- Cards that help children tell the number of objects in a small set quickly, without counting https://earlymath.erikson.edu/quantity-cards/
- A quick, fun game for math practice with numbers up to 20 https://mathforlove.com/lesson/save-twenty/
- Memory game with a twist, finding pairs that add up to 5, 10, or another target number https://mathforlove.com/lesson/sum-memory/
- A short video story that uses items found in nature to practice subtraction https://www.youtube.com/watch?v=Vq2OlWlsjXk&feature=youtu.be
- A readiness check to find out how your child is doing https://bealearninghero.org/readiness-check/
- Tasks for a variety of math topics at the kindergarten level http://tasks.illustrativemathematics.org/content-standards/K

MY NOTES AND QUESTIONS	

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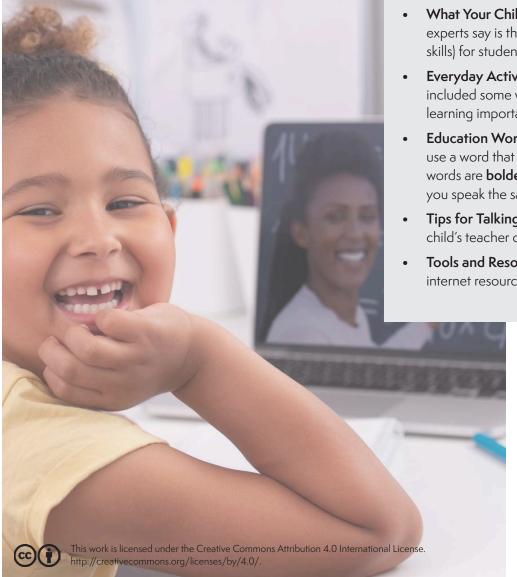
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GRADE 1

THIS GUIDE INCLUDES

- What Your Child Should Know & Be Able to Do What experts say is the most important content (knowledge and skills) for students to learn by the end of first grade.
- Everyday Activities to Support Learning We've included some ways you can support your child in learning important content and skills in literacy and math.
- Education Words Sometimes, you'll hear educators
 use a word that has a specific meaning in schools. Those
 words are bolded. Understanding those terms will help
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- Tips for Talking with Teachers How you and your child's teacher can work together to help your child grow.
- Tools and Resources to Help We've chosen a few internet resources that best match each grade's content.





STUDENT ACHIEVEMENT PARTNERS



LITERACY

WHAT YOUR CHILD SHOULD KNOW AND BE ABLE TO DO



Throughout the school year, 1st grade students will spend the most time working on the following topics. They should understand them well by the end of the year.

Learning to read and write:

Le	arning to read and write:
\bigcirc	Matching letters and sounds to sound out and write simple words. (This may include inventive spelling for writing). Students should be able to accurately decode and write all words with short vowel sounds, final -e, and common long vowel spellings.
\bigcirc	Recognizing, spelling, and properly using those little grammatical words that hold the language together (for example, "a", "the", "to", "of", "from", "I", "is", "are").
\bigcirc	Reading and rereading decodable words and sentences so that the reading is smooth.
\bigcirc	Writing in complete sentences.
Lea	arning about the world through text:*
\bigcirc	Accurately asking and answering questions about stories and texts read aloud. Retelling what happened and explaining key ideas.
\bigcirc	Figuring out the meaning of unknown words by using pictures, context, glossaries, etc. (Children may need support with pronunciation.)
\bigcirc	Showing something new they have learned from a text or about a topic. This can be in any form: speaking and conversation, illustrations, letters, journals, stories, posters, or sentences on the page.

Using a combination of drawing and writing to describe an event in a text. Children should include a title, an introductory sentence, examples, and a conclusion sentence.

*The texts used for this purpose are often read aloud, since they are more complex than the child could read alone. But texts children can read for themselves (with support as needed) may also be used.



- Read aloud to your child for 20 minutes each day. Talk about what is happening in the text. Ask what they are learning.
- Pick a topic to learn about together.
 Read books, look online, do things together. You can help your child build knowledge and develop a love of learning.
- Listen to your child read and reread decodable text. Do they move from decoding sound by sound to reading

- that is smooth and clear? Don't have your child simply look at pictures and guess. Be sure they are working to sound out words that contain sounds and spellings that they know.
- Have your child help with real-world writing. This can include grocery lists, reminder notes, chores, etc. Be sure your child can sound out the words and write the letters they've learned represent the sounds.



MATHEMATICS

WHAT YOUR CHILD SHOULD KNOW AND BE ABLE TO DO



Throughout the school year, 1st grade students will spend the most time working on the following topics. They should understand them well by the end of the year.

- O Solving addition and subtraction word problems starting within 10 and progressing to within 20. (For example, "Five apples were on the table. I ate some apples. Then there were three apples. How many apples did I eat?")
- Adding with a sum of 20 or less, and subtracting from a number 20 or less. A common strategy for these problems is based on the number 10. (For example, to add 9 + 4, a student might first add 1 to 9, making 10, then add the remaining 3 to 10, making 13.) When subtracting, a student may use their addition knowledge. (For example, to solve 12-8, if a student knows that 8 + 4 = 12, then taking 8 away from 12 would mean 4 remain.)
- Mentally adding with a sum of 10 or less (2+5). Mentally subtracting with a sum of 10 or less (8-4). Students may also come to know some of these sums and differences from memory.
- Understanding what the digits mean in two-digit numbers (the number 42 refers to 4 tens and 2 ones).
- Understanding and practicing adding two, two-digit numbers by adding tens and tens and ones and ones. (41 + 27 = 60 + 8 = 68).
- Measuring lengths of objects by using a shorter object as a unit of length. (For example, "How many pencils long is this table leq?")



- As children engage with their world, ask addition and subtraction problems within 10.
 For example:
 - "You have three pencils in your bag, and I have six pencils in my bag. How many pencils do we have altogether?"
 - "There are six birds on the sidewalk. Some flew away. Now there are only four birds. How many birds flew away?"
 - "There are seven cookies in the green package and four cookies in the blue package.

 Which package has more cookies? How many more cookies does that package have?"
- Practice addition. Add ones and ones and add tens and tens for problems like 39 + 14. Do the same thing for problems like 38 + 25 that require making a ten using the ones. (Since 8 + 5 is 13, the problem is the same as 30 + 20 + 13.)
- Read books that include measurement as a topic or theme (https://earlymath.erikson.edu/4-childrens-books-explore-measurement-concepts/). Have your child lay objects down to compare their length. (For example, "One edge of the paper is longer than the other edge. If I place paper clips end to end along the one edge I have (this many) paper clips. That is more than when I place paper clips along the other edge. Then I need only (this many) paper clips.")



EDUCATION WORDS



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Inventive spelling

Spelling a word using spelling attempts based on sounds that the child knows to represent each sound. Accurate spelling is less important than ensuring that your child is using what they have been taught, and building up their ability to sound out words when writing.

Reading level

Teachers often determine the grade level at which a student is reading. But sometimes, children are then limited to reading texts at that level (typically a letter or number). This practice is one to be wary of, particularly if children are limited to reading only texts that are below the grade level goals, or texts that aren't **decodable** and don't match their phonics instruction.

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TIPS FOR TALKING WITH TEACHERS

Literacy

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- How do you select texts? Will my child see characters and topics that represent them, their background, and their identity? Will they learn new perspectives and about new and diverse characters through the texts you use in the classroom?

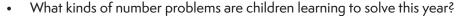


- What letters and sounds should my child have mastered at this point in the year? Has my child mastered these sounds? Does my child have a chance to read texts that help them practice decoding sounds they are learning? Be sure to talk about what you are seeing at home when you are helping your child.
- What topics are children learning about through reading? What should my child be able to understand and talk about as a result of what they have read?
- Is my child able to talk, draw, or write in ways that show you they understand what they are reading and learning about? If not, what challenges are they facing?
- What kind of book(s) is my child reading during independent reading? Are they limited to a specific reading level?



TIPS FOR TALKING WITH TEACHERS (continued)

Math



- Ask for specific updates on how your child is progressing in their understanding of the key content of the grade.
- How does my child approach challenging math tasks? What are some suggestions for me to encourage them in learning challenging content?
- What should my child be able to understand and talk about as a result of what they have learned?
- Is my child able to demonstrate to you that they understand what they are learning about? If not, what challenges are they facing?
- How can I support a positive approach to learning math?





TOOLS AND RESOURCES TO HELP



Literacy

- How to teach sight words
 https://www.literacyworldwide.org/blog%2Fliteracy-now%2F2016%2F06%2F23%2Fteach-ldquo-sight-words-rdquo-as-you-would-other-words
- How to help your child read and understand https://www.pacer.org/pdf/ge/GE-3.pdf
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- What success in first grade reading looks like by the end of the year https://www.greatschools.org/gk/grades/1st-grade/
- What first grade writing samples look like from the start of the year to the end https://www.greatschools.org/gk/category/milestones-topics/writing-samples/
- These resources share guidance on using text sets (texts on the same topic) to promote a love of learning
 - https://achievethecore.org/content/upload/Text%20Set%20Guidance.pdf



TOOLS AND RESOURCES TO HELP (continued)



- Cards that help children tell the number of objects in a set quickly, without counting https://earlymath.erikson.edu/quantity-cards/
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- Tasks for a variety of math topics at the 1st grade level http://tasks.illustrativemathematics.org/content-standards/1

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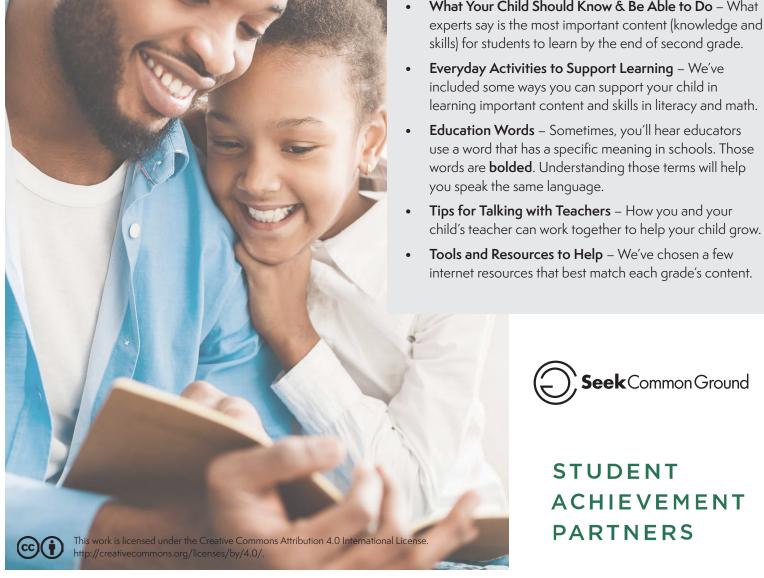
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GRADE

THIS GUIDE INCLUDES What Your Child Should Know & Be Able to Do – What

- skills) for students to learn by the end of second grade. Everyday Activities to Support Learning – We've
- included some ways you can support your child in learning important content and skills in literacy and math.
- **Education Words** Sometimes, you'll hear educators use a word that has a specific meaning in schools. Those words are **bolded**. Understanding those terms will help you speak the same language.
- **Tips for Talking with Teachers** How you and your child's teacher can work together to help your child grow.
- Tools and Resources to Help We've chosen a few internet resources that best match each grade's content.





STUDENT **ACHIEVEMENT** PARTNERS



LITERACY

WHAT YOUR CHILD SHOULD KNOW AND BE ABLE TO DO



Throughout the school year, 2nd grade students will spend the most time working on the following topics. They should understand them well by the end of the year.

Lea	arning to read and write:
\bigcirc	Matching letters and sounds to sound out and write most words. (This may include inventive spelling for writing.) Students should be able to accurately decode and write most commonly spelled one and two syllable words.
\bigcirc	Recognizing, spelling, and properly using those little grammatical words that hold the language together (for example, "a," "the," "to," "of," "from," "I," "is," "are").
\bigcirc	Reading and rereading decodable texts and words/sentences independently so that the reading is smooth.
\bigcirc	Reading grade level texts smoothly and with expression, at a fluency rate of between 70-130 words per minute by the end of the year.
\bigcirc	Writing complete sentences, with mostly correct spelling, capitalization, and punctuation.
Lea	arning about the world through text:*
\bigcirc	Asking and answering questions about stories and texts that are read aloud to them or they read to themselves. Retelling what happened and explaining key ideas.
\bigcirc	Figuring out the meaning of unknown words by using pictures, context, glossaries, etc. (Children may need support with pronunciation.) Figuring out the meaning of words in context when a known prefix or suffix is used ("happy/unhappy;" "pain/painful/painless").
\bigcirc	Showing something new they have learned from a text or about a topic. This can be in any form: speaking and conversation, illustrations, letters, journals, stories, posters or sentences on the page.
\bigcirc	Writing about what happened or information learned from the text. Children should include a title, an introduction, well developed examples, and a concluding statement or section.

*The texts used for this purpose should be a mix of those complex texts read aloud to the child and those read independently (with support as needed).



- Turn on the closed captioning while watching TV to allow your child to read along with the dialogue.
- Have "book talk" conversations. Ask your child to summarize the important ideas in their own words. Ask your child to show you what part of the text provided this information.
- Pick a topic to learn about together. Read books, look online, do things together. You can help your child build knowledge and develop a love of learning.
- Encourage your child to use writing in the real world. This can include authentic writing (grocery lists, notes, chore lists, etc.) as well as writing in a journal, book response notebook, or other creative writing opportunities.



MATHEMATICS

WHAT YOUR CHILD SHOULD KNOW AND BE ABLE TO DO



Throughout the school year, 2nd grade students will spend the most time working on the following topics. They should understand them well by the end of the year.

- Solving challenging addition and subtraction word problems with one or two steps. (For example, a "one-step" problem would be: "Lucy has 23 fewer apples than Julie. Julie has 47 apples. How many apples does Lucy have?")
- Mentally adding the sum of any two single digit numbers (remembering that 7 + 9 = 16). Subtracting mentally with ease from a number 20 or less.
- Understanding what the digits mean in three-digit numbers. (The number 342 refers to 3 hundreds, 4 tens, and 2 ones.)
- Using understanding of **place value** to add and subtract three-digit numbers (811 367). Adding and subtracting two-digit numbers with ease (77 28).
- Measuring and estimating length in standard units.
- Solving addition and subtraction word problems involving length. (For example, "The pen is 2 cm longer than the pencil. If the pencil is 7 cm long, how long is the pen?")



EVERYDAY ACTIVITIES TO SUPPORT LEARNING

 Ask children addition and subtraction problems with one or two steps as they engage with their world. For example,

One step: "Today we are going to spend 70 minutes reading and doing puzzles. 25 minutes will be for doing puzzles. How many minutes will we read?"

Two step: "You gathered 60 vegetables from the community garden. You gathered 30 cobs of corn and 20 tomatoes. The rest of the vegetables were peppers. How many peppers did you collect?

 Practice addition. Add ones and ones, tens and tens, and hundreds and hundreds for problems like 413 + 281.





EDUCATION WORDS



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Decodable

Decodable texts are those that are connected to sound and spelling patterns that have already been taught, so most words the students read will be ones they can decode based on what they have been taught. (For example, students who have learned the sounds /a/, /c/, and /t/ can decode "cat.")

Fluency

The ability to read with speed, accuracy, and proper expression that shows comprehension of what is being read.

Inventive spelling

Spelling a word using spelling attempts based on sounds that the child knows to represent each sound. Accurate spelling is less important than ensuring that your child is using what they have been taught, and building up their ability to sound out words when writing.

Place value

Every digit in a number has a place value based on its position in the number. For example, in the number 548, the digit 5 is in the hundreds place, and its place value is 500. The digit 4 is in the tens place, and its place value is 40. The digit 8 is in the ones place, and its place value is 8.

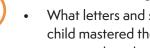
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TIPS FOR TALKING WITH TEACHERS

Literacy

- What are my child's strengths, and how do you use them in instruction?
- How do you select texts? Will my child see characters and topics that represent them, their background, and their identity? Will they learn new perspectives and about new and diverse characters through the texts you use in the classroom



- What letters and sounds should my child have mastered at this point in the year? Has my child mastered these sounds? Does my child have a chance to read texts that help them practice decoding sounds they are learning? Be sure to talk about what you are seeing at home.
- What topics are children learning about through reading? What should my child be able to understand, write, and talk about as a result of what they have read? Topics in history? Topics in science?

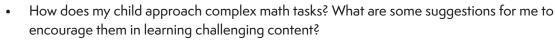


TIPS FOR TALKING WITH TEACHERS (continued)

- Is my child able to speak and listen in class discussions and conversations in ways that show
 you they understand what they are reading and learning about? If not, what challenges are
 they facing?
- How frequently does my child read grade level text independently? If they are not reading grade level text independently, why not? How are you supporting any reading needs they have while still allowing for time with grade level text? How can I help?
- What kinds of book(s) is my child reading during independent reading? Are they limited to a specific **reading level**?

Math

- What kinds of number problems are children learning to solve this year?
- Ask for specific updates on how your child is progressing in their understanding of the key content of the grade.



- What should my child be able to understand and talk about as a result of what they have learned?
- Is my child able to demonstrate to you that they understand what they are learning about? If not, what challenges are they facing? How can I help?
- How can I support a positive approach to learning math?

TOOLS AND RESOURCES TO HELP



Literacy

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- What second grade writing samples look like from the start of the year to the end https://www.greatschools.org/gk/category/milestones-topics/writing-samples/
- Read and learn together with these texts (levels 1 and 2) http://www.textproject.org/teachers/students/fyi-for-kids/
- Forty passages to help students build **fluency** over the course of the school year https://achievethecore.org/page/1021/fluency-packet-for-the-2-3-grade-band
- Use this **fluency** rubric with your child to determine how smoothly they are reading http://www.timrasinski.com/presentations/multidimensional_fluency_rubric_4_factors.pdf
- Use this guidance on "text sets" to find resources and ideas about learning about content through reading https://achievethecore.org/content/upload/Text%20Set%20Guidance.pdf



TOOLS AND RESOURCES TO HELP (continued)



- Cards that help children tell the number of objects in a set quickly, without counting https://earlymath.erikson.edu/quantity-cards/
- A quick, fun game for math practice with numbers up to 20 https://mathforlove.com/lesson/save-twenty/
- Memory game with a twist, finding pairs that add up to 5, 10, or another target number https://mathforlove.com/lesson/sum-memory/
- A short video story that uses items found in nature to practice subtraction https://www.youtube.com/watch?v=Vq2OIWIsjXk&feature=youtu.be
- A readiness check to find out how your child is doing https://bealearninghero.org/readiness-check/
- Tasks for a variety of math topics at the 2nd grade level http://tasks.illustrativemathematics.org/content-standards/2

MY NOTES AND QUESTIONS		

Family Guides: Supporting Learning in the 2020-21 School Year

ABOUT THIS GUIDE

Parents and caregivers have always wanted to know more about what their child is learning in school. After all, families are their child's first – and most important – teacher.

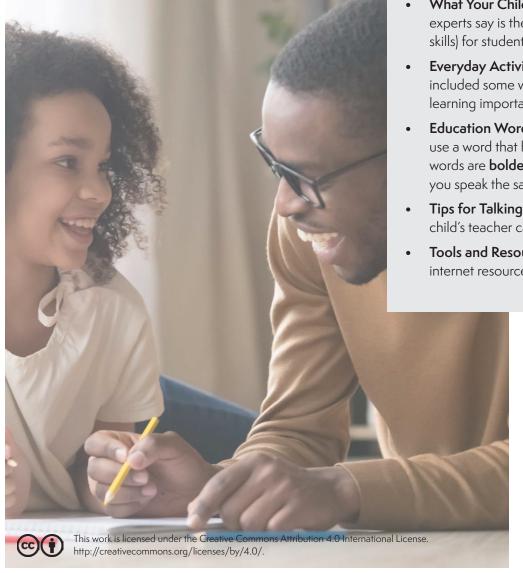
These days, because of the COVID-19 pandemic, children are often learning at home. It's a challenge for all of us. Parents, family members, grandparents, and other caregivers are all pitching in to help children learn. So we include all these people when we talk about how *families* can support kids.

This guide is meant to support families and students academically in literacy and math. Of course, students will be learning other subjects too, but literacy and math are the building blocks for everything else.

GRADE 3

THIS GUIDE INCLUDES

- What Your Child Should Know & Be Able to Do What experts say is the most important content (knowledge and skills) for students to learn by end of third grade.
- Everyday Activities to Support Learning We've included some ways you can support your child in learning important content and skills in literacy and math.
- Education Words Sometimes, you'll hear educators
 use a word that has a specific meaning in schools. Those
 words are bolded. Understanding those terms will help
 you speak the same language.
- Tips for Talking with Teachers How you and your child's teacher can work together to help your child grow.
- Tools and Resources to Help We've chosen a few internet resources that best match each grade's content.





STUDENT ACHIEVEMENT PARTNERS



LITERACY

WHAT YOUR CHILD SHOULD KNOW AND BE ABLE TO DO



Throughout the school year, 3rd grade students will spend the most time working on the following topics. They should understand them well by the end of the year.

Learning to read and write:

sentence or section.

	g · · · · · · · · · · · · · · · · · · ·
\bigcirc	Matching letters and sounds to sound out and write out most words. Students should be able to decode accurately and write words with several syllables and know and use suffixes and prefixes .
\bigcirc	Writing complete sentences and simple paragraphs about what they are learning, with mostly correct spelling, capitalization, and punctuation.
\bigcirc	Reading grade level texts smoothly and with expression, at a fluency rate of around 80-140 words per minute.
Lea	erning about the world through text:
\bigcirc	Asking and answering questions about stories and texts read independently. Retelling what happened, explaining key ideas, and describing connections between ideas. Showing text evidence that supports their thinking.
\bigcirc	Figuring out the meaning of unknown words in text by using context or tools like dictionaries and glossaries. Determining or clarifying the meaning of unknown words, words with multiple meanings, or figurative language in context.
\bigcirc	Using linking words and phrases to connect ideas (such as "also," "another," "more," "but").
\bigcirc	Showing something new they have learned from a text or about a topic. This can be in any form: speaking and conversation, illustrations, letters, journals, stories, posters, or sentences on the page.
\bigcirc	Writing about what happened or information learned from the text. Children should include a title, an introductory sentence or section, well developed examples, and a conclusion



- Turn on the closed captioning while watching TV to allow your child to read along with the dialogue.
- Encourage your child each day to choose a book they want to read on their own. Reading lots of books over time is more important than the type of text.
- Have "book talk" conversations. Ask your child to share the important ideas in their own words and show you what part of the text provided this information.
- Pick a topic to learn about together. Read books, look online, do things together. You can help your child build knowledge and develop a love of learning.
- Encourage your child to use writing in the real world. This can include authentic writing (grocery lists, notes, chore lists, etc.) as well as writing in a journal, book response notebook, or other creative writing opportunities.



MATHEMATICS

WHAT YOUR CHILD SHOULD KNOW AND BE ABLE TO DO



Throughout the school year, 3rd grade students will spend the most time working on the following topics. They should understand them well by the end of the year.

- Remembering the product of any two single-digit numbers (remembering that $7 \times 9 = 63$). Dividing mentally with ease for problems within the times tables ($56 \div 8 = 7$).
- Solving two-step word problems using addition, subtraction, multiplication, and division. (For example, "You already have 12 pens. There are 5 new packs of pens with 6 pens in each pack. How many pens do you have now?")
- \bigcirc Beginning to multiply numbers with more than one digit (multiplying 9 × 80).
- Understanding the meaning of division. Relating division to multiplication. (For example, "I know that $63 \div 9 = 7$ because I remember $7 \times 9 = 63$.")
- Understanding fractions as parts of wholes. For example, ¾ inch is the length of 3 of the parts when 1 inch is broken into 4 equal parts.
- Understanding fractions as numbers. This includes representing fractions and whole numbers on a **number line** diagram; equating whole numbers and fractions (% = 1 and 3 = $\frac{3}{1}$); and comparing fractions in simple cases where the **numerators** are equal or the **denominators** are equal ($\frac{2}{1}$ 8 is less than $\frac{6}{1}$ 8 because two parts of a given size are less than six parts of the same size).



- Ask children real-world addition, subtraction, multiplication, and division problems with two steps. For example:
 - Your teacher, Mr. Dent, had 32 markers. He buys new boxes of markers that have 9 markers in each box. Now, he has 86 markers. How many new boxes did he buy?
 - Students in 3 art classes cut 728 inches of ribbon into 8-inch long pieces. Two of the classes together cut 656 inches of ribbon. How many 8-inch long pieces of ribbon did the other class cut?
- Use the language of unit fractions (one-fourth, one-half, one-third) when sharing. ("You get one-half of the cookie, and your brother gets one-half of the cookie.")
- Practice times tables (all products of two one-digit numbers) and relate the multiplication to an understanding of division (6 \times 4 is 24, therefore, 24 \div 6 is 4).
- Read story books about multiplication. Talk about how multiplication makes sense when
 dealing with groups of objects. Here is a list of some good books from which to choose:
 https://www.the-best-childrens-books.org/teaching-multiplication.html.





Sometimes, you'll hear educators use a word that has a specific meaning in schools. Understanding those terms will help you speak the same language!

Automaticity

Automaticity is the ability to do things without thinking about each step in the process. It is usually the result of learning, repetition, and practice.

Figurative language

Figurative language uses figures of speech to be more interesting, effective, and impactful. ("My dog's coat is as black as coal." "He was a lion when he fought for what was right.")

Fluency

The ability to read with speed, accuracy, and proper expression that shows comprehension of what is being read.

Number line

A straight line with numbers placed at equal segments along its length.



Numerator and denominator

The numerator is the top number in a fraction. It shows how many parts we have. The denominator is the bottom number in a fraction. It shows how many parts the item is divided into.



Prefix

A prefix is a group of letters added to the beginning of a word that change its meaning. Adding "un" to the word "clean" makes the word mean "not clean." Other common prefixes are "re," "dis, "over," "mis," and "out."

Reading level

Teachers often determine the grade level at which a student is reading. But sometimes, children are then limited to reading texts at that level (typically a letter or number). This practice is one to be wary of, particularly if children are limited to reading only texts that are below the grade level goals.

Suffix

A suffix is a group of letters added to the end of a word. Suffixes can change the meaning of a word. Adding "less" to "end" changes its meaning to "without end." A suffix can also change how the word is used. The noun "child" becomes an adjective "childish" when you add the suffix "ish."

Text sets

Text sets are carefully grouped sets of texts and media resources focused on a specific topic designed to help all learners build background knowledge and vocabulary through a lot of reading on science, social studad other high-interest topics.



TIPS FOR TALKING WITH TEACHERS

Literacy

- What are my child's strengths, and how do you use them in instruction?
- How do you select texts? Will my child see characters and topics that represent them, their background, and their identity? Will they learn new perspectives and about new and diverse characters through the texts you use in the classroom?
- What topics are children learning about through reading? What should my child be able to understand, write, and talk about as a result of what they have read? Topics in history? Topics in science?



- Has my child mastered decoding single words and words with lots of syllables? If not, what supports will be provided to ensure that they are able to decode accurately and with automaticity?
- Is my child able to speak and listen during class discussions and conversations in ways that demonstrate they understand what they are reading and learning about? Are they able to use evidence from the text, present their responses in detail, and speak clearly about the topic or text? If not, what challenges are they facing?
- How frequently does my child read grade level text independently? If they are not reading
 grade level text independently, why not? How are you supporting any reading needs they
 have while still allowing for time with grade level text? How can I help?
- What kinds of book(s) is my child reading during independent reading? Are they limited to a specific **reading level**?

- What kinds of number problems are children learning to solve this year?
- Ask for specific updates on how your child is progressing in their understanding of the key content of the grade.
- How does my child approach complex math tasks? What are some suggestions for me to
 encourage them in learning challenging content? How can I support a positive approach to
 learning math?
- What should my child be able to understand and talk about as a result of what they have learned?
- Is my child able to demonstrate to you that they understand what they are learning about? If not, what challenges are they facing?
- How can I support a positive approach to learning math?









TOOLS AND RESOURCES TO HELP



Literacy

- What third grade writing samples look like from the start of the year to the end https://www.greatschools.org/gk/category/milestones-topics/writing-samples/
- Forty passages to help students build fluency over the course of the school year https://achievethecore.org/page/1021/fluency-packet-for-the-2-3-grade-band
- Easy-to-use materials that help your third grader research and write to inform or explain https://www.vermontwritingcollaborative.org/WPDEV/research-packs/
- Can your third grader complete these literacy tasks?
 https://bealearninghero.org/readiness-check/ela-quiz/?level=grade-03
- How fluently is your third grader reading? Use this tool to find out http://www.timrasinski.com/presentations/multidimensional_fluency_rubric_4_factors.pdf
- How to use text sets to find resources and ideas about learning about any subject through reading https://achievethecore.org/content/upload/Text%20Set%20Guidance.pdf



- Parent roadmaps: What should children be learning in Grade 3? How can families support that learning? https://www.cgcs.org/Page/244
- Capture: A fun card game to practice multiplication https://lwoqu41bs5kerai2f3lyxkm7-wpengine.netdna-ssl.com/wp-content/uploads/2018/07/Capture.pdf
- Video showing how students can place fractions on a number line https://www.pbs.org/video/good-know-fractions-number-line-grade-3/
- Fraction bars help students see and understand fractions http://toytheater.com/fraction-bars/
- Missing Divisor: Students select the missing divisor to complete the equation http://toytheater.com/missing-divisor/
- Fluency resources to practice Grade 3 math skills https://achievethecore.org/page/2948/fluency-resources-for-grade-level-routines
- Are fractions numbers? Questions to allow students to explain their understanding of fractions https://achievethecore.org/page/929/are-fractions-numbers
- Comparing Fractions: A game to help children understand the size of fractions https://achievethecore.org/page/2774/comparing-fractions-game
- Multiplication and division tasks to practice Grade 3 math https://achievethecore.org/page/841/multiplication-and-division-fluency-set-of-tasks
- A readiness check to find out how your child is doing https://bealearninghero.org/readiness-check/
- Tasks for a variety of math topics at the 3rd grade level http://tasks.illustrativemathematics.org/content-standards/3

Family Guides: Supporting Learning in the 2020-21 School Year

ABOUT THIS GUIDE

Parents and caregivers have always wanted to know more about what their child is learning in school. After all, families are their child's first – and most important – teacher.

These days, because of the COVID-19 pandemic, children are often learning at home. It's a challenge for all of us. Parents, family members, grandparents, and other caregivers are all pitching in to help children learn. So we include all these people when we talk about how *families* can support kids.

This guide is meant to support families and students academically in literacy and math. Of course, students will be learning other subjects too, but literacy and math are the building blocks for everything else.

GRADE 4

THIS GUIDE INCLUDES

- What Your Child Should Know & Be Able to Do What experts say is the most important content (knowledge and skills) for students to learn by the end of fourth grade.
- Everyday Activities to Support Learning We've included some ways you can support your child in learning important content and skills in literacy and math.
- Education Words Sometimes, you'll hear educators use a word that has a specific meaning in schools. Those words are **bolded**. Understanding those terms will help you speak the same language.
- Tips for Talking with Teachers How you and your child's teacher can work together to help your child grow.
- Tools and Resources to Help We've chosen a few internet resources that best match each grade's content.





STUDENT ACHIEVEMENT PARTNERS



LITERACY

WHAT YOUR CHILD SHOULD KNOW AND BE ABLE TO DO



Throughout the school year, 4th grade students will spend the most time working on the following topics. They should understand them well by the end of the year.

Reading and writing skills:

- Writing to complete sentences and paragraphs about what they are learning, with mostly correct spelling, grammar, capitalization, and punctuation.
- Reading 4th grade level texts smoothly and with expression, at a **fluency** rate of around 90-140 words per minute.

Learning about the world through text:

- Asking and answering questions about stories and texts read independently. Using specific evidence to describe, to explain how ideas are connected, and to support inferences about the text.
- Figuring out the meaning of unknown words in text by using context or tools like dictionaries and glossaries. Determining or clarifying the meaning of unknown words, words with multiple meanings, synonyms, antonyms, or figurative language in context.
- Linking opinions and reasons or ideas within categories using words and phrases to connect ideas (for example, "for instance," "in order to," "in addition," "for example," "also").
- Showing something new they have learned from a text or about a topic. This can be in any form: speaking and conversation, illustrations, letters, journals, stories, posters, or essays.
- Writing about what happened or information learned from the text. Children should include a title, an introductory sentence or section, well-developed examples, and a conclusion sentence or section. Spelling, capitalization, and punctuation should be mostly accurate.



- Turn on the closed captioning while watching TV to allow your child to read along with the dialogue.
- Encourage your child each day to choose a book they want to read on their own. Reading lots of books over time is more important than the type of text. Let your child pick based on their interests and what makes them excited to read.
- Have "book talk" conversations. Ask your child to share the important ideas in their own words and show you what part of the text provided this information.
- Pick a topic to learn about together. Read books, look online, do things together. You can help your child build knowledge and develop a love of learning.
- Encourage your child to use writing in the real world. This can include authentic writing (grocery lists, notes, chore lists, etc.) as well as writing in a journal, book response notebook, or other creative writing opportunities



MATHEMATICS

WHAT YOUR CHILD SHOULD KNOW AND BE ABLE TO DO



Throughout the school year, 4th grade students will spend the most time working on the following topics. They should understand them well by the end of the year.

- Using the four operations, solve multi-step word problems that use whole numbers and have whole number answers, including problems where students make sense of remainders. (For example, "Four classes are going on a field trip. The classes each have 28 students. Buses hold 48 passengers. If all of the students, 4 teachers and 4 chaperones are going on the field trip, how many buses will they need?")
- Adding and subtracting multi-digit numbers with ease (23,647 5,265).
- Multiplying and dividing multi-digit numbers in problems with a limited number of digits $(1,638 \times 7 \text{ or } 24 \times 17; 6,966 \div 6).$
- O Understanding and applying equivalent fractions (recognizing that ¼ is less than 3/4 because ¼ equals ²/8, and two eighths are less than three eighths).
- \bigcirc Adding, subtracting, and multiplying fractions in simple problems (2 $\frac{3}{4}$ 1 $\frac{1}{4}$ or 3 × $\frac{5}{8}$), and solving related word problems that include fractions in context. (For example, you are going to make cookies for a party. You need \(^2\)3 cup sugar for one batch and decide to make 8 batches, so all your neighbors can have a cookie. How many cups of sugar do you need?)
- Understanding and explaining simple decimals in terms of fractions (rewriting 0.62 as 62/100).



- Practice adding and subtracting (multi-digit numbers) and multiplying and dividing, two digits by two digits (32 \times 68; 89 \div 47) and up to four digits by one digit (1,200 \times 8; 1,800 \div 9).
- Practice adding and subtracting fractions with the same **denominator** ($\frac{4}{10} + \frac{3}{10}$; $\frac{56}{100} \frac{22}{100}$).
- Encourage a positive mindset about mathematics in the real world. This can be done by cooking with your child and asking them to help you measure the ingredients for a recipe.
- Read books about division and talk about situations where students use division in real life (https://www.the-best-childrens-books.org/teaching-division.html).





EDUCATION WORDS



Sometimes, you'll hear educators use a word that has a specific meaning in schools. Understanding those terms will help you speak the same language!

Antonyms

Antonyms are words that mean the opposite. "Big" and "little" are antonyms.

Figurative language

Figurative language uses figures of speech to be more interesting, effective, and impactful. ("My dog's coat is as black as coal." "He was a lion when he fought for what was right.")

Fluency

The ability to read with speed, accuracy, and proper expression that shows comprehension of what is being read.

Numerator and denominator

The numerator is the top number in a fraction. It shows how many parts we have. The denominator is the bottom number in a fraction. It shows how many parts the item is divided into.



Reading level

Teachers often determine the grade level at which a student is reading. But sometimes, children are then limited to reading texts at that level (typically a letter or number). This practice is one to be wary of, particularly if children are limited to reading only texts that are below the grade level goals.

Synonyms

Synonyms are words that mean the same thing. "Big" and "enormous" are synonyms.

Text sets

Text sets are carefully grouped sets of texts and media resources focused on a specific topic designed to help all learners build background knowledge and vocabulary through a volume of reading on science, social studies, and other high-interest topics.





TIPS FOR TALKING WITH TEACHERS

Literacy

- What are my child's strengths, and how do you use them in instruction?
- How do you select texts? Will my child see characters and topics that represent them, their background, and their identity? Will they learn new perspectives and about new and diverse characters through the texts you use in the classroom?
- What topics are children learning about through reading? What should my child be able to understand, write, and talk about as a result of what they have read? Topics in history? Topics in science?



- Is my child reading Grade 4 text fluently? If not, do they have trouble with decoding? Vocabulary? What supports are being provided to address their needs?
- Is my child able to speak and listen during class discussions and conversations in ways that demonstrate they understand what they are reading and learning about? Are they able to use evidence from the text, present their responses in detail, and speak clearly about the topic or text? If not, what challenges are they facing? How can I help?
- How frequently does my child read grade level text independently? If they are not reading grade level text independently, why not? How are you supporting any reading needs they have while still allowing for time with grade level text? How can I help?
- What kinds of book(s) is my child reading during independent reading? Are they limited to a specific **reading level**?

- What kinds of number problems are children learning to solve this year?
- Ask for specific updates on how your child is progressing in their understanding of the key content of the grade.



- How does my child approach complex math tasks? What are some suggestions for me to encourage them in learning challenging content?
- What should my child be able to understand and talk about as a result of what they have learned?
- Is my child able to demonstrate to you that they understand what they are learning about? If not, what challenges are they facing?
- How can I support a positive approach to learning math?







TOOLS AND RESOURCES TO HELP



Literacy

- What fourth grade writing samples look like from the start of the year to the end https://www.greatschools.org/gk/category/milestones-topics/writing-samples/
- Forty passages to help students build fluency over the course of the school year https://achievethecore.org/page/886/fluency-packet-for-the-4-5-grade-band
- Easy-to-use materials that help your fourth grader research and write to inform or explain https://www.vermontwritingcollaborative.org/WPDEV/research-packs/
- Can your fourth grader complete these literacy tasks?
 https://bealearninghero.org/readiness-check/ela-quiz/?level=grade-04
- Use this tool to find out how fluently your fourth grader is reading http://www.timrasinski.com/presentations/multidimensional_fluency_rubric_4_factors.pdf
- How to use text sets to find resources and ideas about learning about any subject through reading https://achievethecore.org/content/upload/Text%20Set%20Guidance.pdf



- Parent roadmaps: What should children be learning in Grade 4? How can families support that learning?
 - https://www.cgcs.org/Page/244
- How "Big" is a Million? https://earlymath.erikson.edu/how-big-is-a-million-online-math-books/
- Rainbow Fraction Game: Color butterflies to represent fractions http://toytheater.com/rain-drops/
- Comparing fractions using a benchmarks game https://achievethecore.org/index.php/page/2775/comparing-fractions-using-benchmarks-game
- Three math problems that ask students, "Who raised the most money?" but require different math skills to find the answer
 - https://achievethecore.org/page/615/comparing-money-raised
- Math can make sure every student gets to play on a team https://achievethecore.org/page/1053/how-many-teams
- Three fun ways to think about how math can solve real-world problems https://achievethecore.org/category/416/mathematics-tasks?&g%5B%5D=4&sort=name
- A readiness check to find out how your child is doing https://bealearninghero.org/readiness-check/
- Tasks for a variety of math topics at the 4th grade level https://tasks.illustrativemathematics.org/4

Family Guides: Supporting Learning in the 2020-21 School Year

ABOUT THIS GUIDE

Parents and caregivers have always wanted to know more about what their child is learning in school. After all, families are their child's first – and most important – teacher.

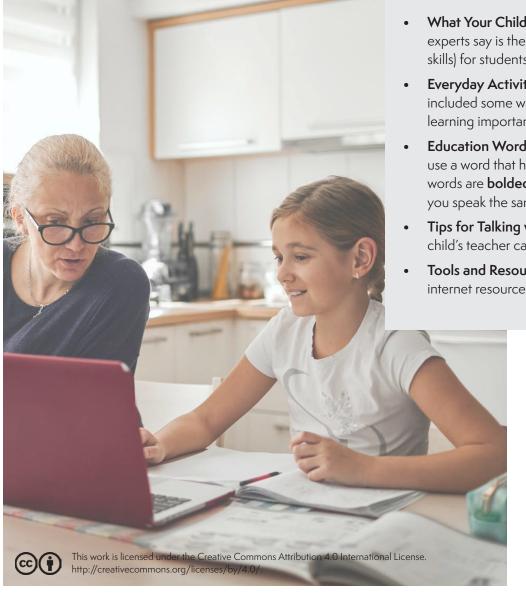
These days, because of the COVID-19 pandemic, children are often learning at home. It's a challenge for all of us. Parents, family members, grandparents, and other caregivers are all pitching in to help children learn. So we include all these people when we talk about how families can support kids.

This guide is meant to support families and students academically in literacy and math. Of course, students will be learning other subjects too, but literacy and math are the building blocks for everything else.

GRADE 5

THIS GUIDE INCLUDES

- What Your Child Should Know & Be Able to Do What experts say is the most important content (knowledge and skills) for students to learn by the end of fifth grade.
- Everyday Activities to Support Learning We've included some ways you can support your child in learning important content and skills in literacy and math.
- Education Words Sometimes, you'll hear educators
 use a word that has a specific meaning in schools. Those
 words are bolded. Understanding those terms will help
 you speak the same language.
- Tips for Talking with Teachers How you and your child's teacher can work together to help your child grow.
- Tools and Resources to Help We've chosen a few internet resources that best match each grade's content.





STUDENT ACHIEVEMENT PARTNERS



LITERACY

WHAT YOUR CHILD SHOULD KNOW AND BE ABLE TO DO



Throughout the school year, 5th grade students will spend the most time working on the following topics. They should understand them well by the end of the year.

Reading and writing skills:

- Writing to complete sentences and well developed paragraphs about what they are learning, with mostly correct spelling, grammar, capitalization, and punctuation.
- Reading grade level texts smoothly and with expression, at a **fluency** rate of around 100-150 words per minute.

Learning about the world through text:

- Asking and answering questions about stories and texts read independently. Using specific evidence to support in depth description, to explain how ideas are connected, and to support inferences about the text.
- Figuring out the meaning of unknown words in text by using context, word relationships, or tools such as dictionaries and glossaries. Determining or clarifying the meaning of unknown words such as **synonyms**, **antonyms**, **idioms**, and words with multiple meanings, based on how they are used in context.
- Linking opinions and reasons or ideas within categories using words and phrases (for example, "consequently," "specifically," "in contrast," "especially").
- Showing something new they have learned from a text or about a topic. This can be in any form: speaking and conversation, illustrations, letters, journals, stories, posters, or essays.
- Writing in response to text. Children should include an introduction with a simple **thesis statement**, examples that are logically ordered and grouped, a conclusion, and mostly accurate spelling, capitalization, and punctuation.



- Turn on the closed captioning while watching TV to allow your child to read along with the dialogue.
- Encourage your child each day to choose a book they want to read on their own. Reading
 lots of books over time is more important than the type of text. Let your child pick based
 on their interests and what makes them excited to read.
- Have "book talk" conversations. Ask your child to share the important ideas in their own
 words and show you what part of the text provided this information.
- Pick a topic to learn about together. Read books, look online, do things together. You can help your child build knowledge and develop a love of learning.
- Encourage your child to use writing in the real world. This can include authentic writing (grocery lists, notes, chore lists, etc.) as well as writing in a journal, book response notebook, or other creative writing opportunities.



MATHEMATICS

VHAT YOUR CHILD SHOULD KNOW AND BE ABLE TO DO



Throughout the school year, 5th grade students will spend the most time working on the following topics. They should understand them well by the end of the year.

- Multiplying multi-digit numbers with ease (1,638 × 753). Dividing multi-digit numbers in cases with a limited number of digits $(6,951 \div 63 = 110 \%)$. \bigcirc Adding and subtracting fractions with **unlike denominators** (2 \(\mathcal{1} \) – 1 \(\mathcal{1} \)), and solving
- Multiplying fractions and mixed numbers, and dividing fractions in special cases. Solving word problems using these operations (For example, finding the area of a city block that is 1/3 mile long by 1/2 mile wide; finding the size of a share if 9 people share a 50-pound sack of rice equally, or if 3 people share ½ pound of chocolate equally.)
- Calculating with decimals to the hundredths place (two places after the decimal).

word problems that include fractions with unlike denominators.

- Understanding the concept of volume, and solving word problems that involve volume.
- Graphing points in the **coordinate plane** (two dimensions) to solve problems.



- Reinforce multi-digit multiplication and division practice without the added pressure of time limits by focusing on your child's accurate and efficient attempts (4,378 \times 615; 2,560 \div 24).
- Practice adding and subtracting fractions with unlike denominators (3 $\frac{3}{10}$ + 7 $\frac{2}{10}$ = 10 $\frac{7}{10}$ because 7 $\frac{1}{10}$ is the same as 7 $\frac{4}{10}$; $\frac{7}{8} - \frac{3}{4} = \frac{1}{8}$ because $\frac{3}{4}$ is the same as $\frac{6}{8}$.
- Practice multiplication and division with fractions. Begin multiplication practice with fractions and whole numbers, before moving on to multiplying a fraction by a fraction.
- Encourage a positive mindset about math in the real world. This can be done by exploring concepts like volume. (For example, what's the volume of a cereal box?)







Sometimes, you'll hear educators use a word that has a specific meaning in schools. Understanding those terms will help you speak the same language!

Antonyms

Antonyms are words that mean the opposite. "Big" and "little" are antonyms.

Coordinate plane

A coordinate plane (https://www.splashlearn.com/math-vocabulary/geometry/coordinate-plane) is a two-dimensional (https://www.splashlearn.com/math-vocabulary/geometry/two-dimensional) plane formed by the intersection of a vertical number line called y-axis and a horizontal number line called x-axis. These are perpendicular lines that intersect each other at zero, and this point is called the origin (https://www.splashlearn.com/math vocabulary/geometry/origin).

Fluency

The ability to read with speed, accuracy, and proper expression that shows comprehension of what is being read.

Idiom

A group of words established by usage as having a meaning not deducible from those of the individual words (for example, "raining cats and dogs," meaning "to rain heavily;" "piece of cake," meaning "something that is easy to do").

Reading level

Teachers often determine the grade level at which a student is reading. But sometimes, children are then limited to reading texts at that level (typically a letter or number). This practice is one to be wary of, particularly if children are limited to reading only texts that are below the grade level goals.

Synonyms

Synonyms are words that mean the same thing. "Big" and "enormous" are synonyms.

Text sets

Text sets are thoughtfully grouped sets of texts and media resources focused on a specific topic designed to help all learners build background knowledge and vocabulary through multiple texts on science, social studies, and other high-interest topics.

Thesis statement

A thesis statement is one or two sentences that summarize the paper's main point, main idea, or main message.

Unlike denominators

Unlike denominators are two fractions (https://www.splashlearn.com/math-vocabulary/fractions/fraction) with non-identical denominators (https://www.splashlearn.com/math-vocabulary/fractions/denominator). For example, ²/₃ and ⁴/₁₀ have unlike denominators.

Volume

Volume is the 3-dimensional (https://www.splashlearn.com/math-vocabulary/geometry/3-dimensional) space enclosed by a boundary or occupied by an object. Finding the volume of an object can help us to determine the amount required to fill that object, like the amount of water needed to fill a bottle, an aquarium, or a water tank. The volume of an object is measured in cubic units (https://www.splashlearn.com/math-vocabulary/geometry/cubic-unit) such as cubic centimeters, cubic inch, cubic foot, cubic meter, etc.



TIPS FOR TALKING WITH TEACHERS (continued)

Literacy

- What are my child's strengths, and how do you use them in instruction?
- How do you select texts? Will my child see characters and topics that represent them, their background, and their identity? Will they learn new perspectives and about new and diverse characters through the texts you use in the classroom?
- What topics are children learning about through reading? What should my child be able to understand, write, and talk about as a result of what they have read? Topics in history? Topics in science?



- Is my child reading Grade 5 text fluently? If not, do they have trouble with decoding? Vocabulary? What supports are being provided to address their needs?
- Is my child able to speak and listen in class discussions and conversations in ways that demonstrate they understand what they are reading and learning? Are they able to use evidence from the text, present their responses in detail, and speak with sufficient depth? If not, what challenges are they facing?
- How frequently does my child read grade level text independently? If they are not reading grade level text independently, why not? How are you supporting any reading needs they have while still allowing for time with grade level text? How can I help?
- What kinds of book(s) is my child reading during independent reading? Are they limited to a specific **reading level**?

- What kinds of number problems are children learning to solve this year?
- Ask for specific updates on how your child is progressing in their understanding of the key content of the grade.
- How does my child approach complex math tasks? What are some suggestions for me to encourage them in learning challenging content?
- What should my child be able to understand and talk about as a result of what they have learned?
- Is my child able to demonstrate to you that they understand what they are learning about? If not, what challenges are they facing?
- How can I support a positive approach to learning math?











TOOLS AND RESOURCES TO HELP



Literacy

- What fifth grade writing samples look like from the start of the year to the end https://www.greatschools.org/gk/category/milestones-topics/writing-samples/
- Forty passages to help students build fluency over the course of the school year https://achievethecore.org/page/886/fluency-packet-for-the-4-5-grade-band
- Easy-to-use materials that help your fifth grader research and write to inform or explain https://www.vermontwritingcollaborative.org/WPDEV/research-packs/
- Can your fifth grader complete these literacy tasks?
 https://bealearninghero.org/readiness-check/ela-quiz/?level=grade-05
- Use this tool to find out how fluently your fifth grader is reading http://www.timrasinski.com/presentations/multidimensional_fluency_rubric_4_factors.pdf
- How to use text sets to find resources and ideas for learning about any subject through reading https://achievethecore.org/content/upload/Text%20Set%20Guidance.pdf



- Parent roadmap: What should children be learning in Grade 5? How can families support their learning? https://www.cqcs.org/Page/244
- Videos and tutorials to help fifth graders understand and practice using decimal place values https://www.khanacademy.org/math/cc-fifth-grade-math/imp-place-value-and-decimals
- Fluency resources to practice Grade 5 computations https://achievethecore.org/page/2948/fluency-resources-for-grade-level-routines
- Three fun tasks to engage students with fractions and the concept of volume https://achievethecore.org/category/416/mathematics-tasks?&g%5B%5D=5&sort=name
- A readiness check to find out how your child is doing https://bealearninghero.org/readiness-check/
- Tasks for a variety of math topics at the 5th grade level http://tasks.illustrativemathematics.org/content-standards/5

MY NOTES AND QUESTIONS

Family Guides: Supporting Learning in the 2020-21 School Year

ABOUT THIS GUIDE

These days, because of the COVID-19 pandemic, students are often learning at home. It's a challenge for all of us. Parents, family members, grandparents, and other caregivers are all pitching in to help students learn. So, we include all those important people when we talk about how families can support middle schoolers' learning in this quide.

Families want to know more about what their kids are learning in school, so they can support them. In the early grades, they are usually able to offer help if kids get stuck. As students get older, the content gets more challenging. Suddenly, parents and caregivers can feel like they don't have much help to offer. But that's not the case. Research confirms that families still have a big role to play in helping students learn. It's just a different role.

How can families be supportive? In addition to providing encouragement, a study of more than 50,000 students found that relating what middle and high school kids are learning in school to their future life goals is one of the most effective ways families can help. What doesn't work? Trying to be directly involved with schoolwork. It can feel to middle and high school students like you're interfering or even confusing them. And this IS the time to encourage students to take more responsibility and be more independent; helping kids take charge of their learning is important.

This guide was developed so students and their families can understand the most important literacy and math content and skills students should learn at each grade level. Of course, students will be learning in other academic subjects too, but literacy and math are the important building blocks for everything else.

"Harvard Graduate School of Education (2009). Hill: Parents need to link schoolwork to future goals. http://www.gse.harvard.edu/news/09/05/hill-parents-need-link-schoolwork-future-goals.





THIS GUIDE INCLUDES

- What 6th Graders Are Learning What experts say
 is the most important content (knowledge and skills)
 for students to learn in literacy and math by the end
 of sixth grade.
- Talking About Literacy and Math with Your 6th Grader – Ways families can talk with their 6th grader about what they are learning in school, find related resources, and connect learnings to the world around them.
- Education Words Sometimes, you'll hear educators use a word that has a specific meaning in schools. Those words are bolded. Understanding those terms will help you speak the same language.
- Tips for Talking with Teachers How you and your child's teachers can work together to help students grow.
- Connecting Classrooms to Careers Helping your middle schooler see the connection between classroom learning and their future.
- Tools and Resources to Help We've chosen a few internet resources that best match each grade's content.



STUDENT ACHIEVEMENT PARTNERS



LITERACY

WHAT 6TH GRADERS ARE LEARNING



Throughout the school year, 6th grade students will spend the most time working on the following topics. They should understand them well by the end of the year.

Reading, writing, speaking, and listening:

	5. 5.1 5. 5
\bigcirc	Reading grade level texts smoothly and with expression, at a fluency rate of around 110-160 words per minute by the end of the year.
0	Asking and answering questions about stories and texts read independently. Summarizing what happened in what was read and citing specific evidence to show how they know. Questioning the author's or speaker's assumptions. Determining the accuracy of statements they have heard or read.
	Analyzing the author's specific word choice to understand how it impacts the meaning or tone of the text. Determining or clarifying the meaning of unknown words, synonyms , antonyms, and figures of speech (for example, "cause and effect," "part and whole," "item and category"). Determining or clarifying the meaning of words with similar, but not identical, meanings (for example, "stingy," "scrimping," "economical," "thrifty"). This can be done based on how they are used in context, through word relationships, or by using tools like dictionaries or glossaries.
\bigcirc	Making and justifying a claim or line of argument in writing or discussion. Supporting claims with precise and relevant evidence from credible sources.
\bigcirc	Showing something new they have learned from a text or about a topic. This can be in any form – speaking and conversation, letters, journals, stories, diagrams, reports, or essays – and should include sufficient additional detail that fits the form they have chosen.

Writing in response to text, including an introduction and **thesis statement**; examples that are linked, logically ordered, and grouped; a conclusion; and mostly accurate spelling, capitalization, and punctuation.



TALKING ABOUT LITERACY WITH YOUR 6TH GRADER

- If your 6th grader's reading is choppy, or they sound out every word, fluency might be an issue. Have them practice reading and re-reading a poem, short story, or passage to focus on expression and rate.
- Turn on closed captioning while watching TV to allow your 6th grader to read along with the dialogue.
- Encourage your 6th grader to choose a book they want to read on their own each day. Reading lots of books over time is more important than the type of text. Let your child pick based on their interests and what makes them excited to read.
- Pick a topic to learn about together. Read books, look online, or do short research projects together. Ask what they learned in their reading. Have them share with you, with friends, or with other family members.
- Encourage regular writing: keeping a journal, writing letters or emails, and/or taking notes on what they are learning. Encourage your 6th grader to write to you, and then write back to them.
- Listen to podcasts together, or encourage your 6th grader to listen to podcasts of their choice and tell you about what they cover. There is a wide range of podcasts available. Consider the following sampling for a range of topics and types: "But Why: A Podcast for Curious Kids;" "Code Switch;" and "The Unexplainable Disappearance of Mars Patel."



MATHEMATICS

WHAT 6TH GRADERS ARE LEARNING



Throughout the school year, 6th grade students will spend the most time working on the following topics. They should understand them well by the end of the year.

- Understanding ratios and rates, and solving problems involving **proportional relationships**. (For example, "If it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?")
- Dividing fractions and solving word problems related to dividing fractions. (For example, "You are making granola. One batch of granola requires 3/3 cup of nuts. How many batches can be made with 4 cups of nuts?")
- Using positive and negative numbers together to describe quantities. Understanding the ordering and absolute values of positive and negative numbers. Representing points in the coordinate plane that have positive and negative coordinates.
- Reading, writing, and manipulating algebra **expressions** by applying knowledge of how numbers work (for example, when adding numbers, the order doesn't matter, so x + y = y + x). Emphasizing **equivalent expressions** and using properties of addition and multiplication to rewrite them (for example, 24x + 18y can be rewritten as 6(4x + 3y) or y + y + y as 3y).
- Understanding and using the process of solving simple equations (those with one unknown quantity or variable like 7x = 22).
- Writing equations to solve word problems and describe relationships between quantities. (For example, the distance (D) traveled by a train over a period of time (T) might be expressed by an equation D = 85T, where D equals the distance in miles, and T equals the time in hours. This equation could be used to find the time required for the train to travel 100 miles or to find the distance the train would travel in 1.5 hours.)



TALKING ABOUT MATH WITH YOUR 6TH GRADER

- Encourage your 6th grader to talk to you about the math they feel they can successfully do. What new
 concepts are they are learning? Where do they feel they need additional challenge and/or support?
- Help your 6th graders find resources that they feel are relevant and helpful. Suggest that they talk to their teachers about the resources, extensions, and practice activities they find.
- Have your child name topics of study that are directly relevant to their world. For example, in Grade 6, where do they see negative numbers besides their math materials?
- Encourage your 6th grader to think about jobs they might like to have when they are an adult. Help them learn about how math is a part of these jobs.





EDUCATION WORDS



Sometimes, you'll hear educators use a word that has a specific meaning in schools. Understanding those terms will help you speak the same language!

Absolute value

The distance a number is from zero. The symbol "I" is placed on either side of a number to mean absolute value, so we write I-7I = 7.

Antonyms

Antonyms are words that mean the opposite. "Big" and "little" are antonyms.

Coordinate plane

A coordinate plane (https://www.splashlearn.com/math-vocabulary/geometry/coordinate-plane) is a two-dimensional (https://www.splashlearn.com/math-vocabulary/geometry/two-dimensional) plane formed by the intersection of a vertical number line called y-axis and a horizontal number line called x-axis. These are perpendicular lines that intersect each other at zero, and this point is called the origin (https://www.splashlearn.com/math-vocabulary/geometry/origin).

Equivalent expressions

Equivalent expressions are expressions that work the same even though they look different. If two algebraic expressions are equivalent, then the two expressions have the same value when we plug in the same value(s) for the variable(s). For example, 2x + x + x is equivalent to 4x.

Expression

Numbers, symbols, and operators (such as + and x) grouped together that show the value of something. For example, y + 4 is an expression, and 3 - x/2 is also an expression.

Figures of speech

A figure of speech is a word or phrase meant to create meaning that is separate from the literal definition. A figure of speech might be used to describe, compare, exaggerate, or emphasize something to convey meaning.

Proportional relationships

A relationship between two varying quantities in which one quantity is a constant multiple of another quantity. For example, in an ant farm, the total number of legs is six times the total number of ants, so in an ant farm the number of legs is proportional to the number of ants.

Reading level

Teachers often determine the grade level at which a student is reading. But sometimes, students are then limited to reading texts at that level (typically a letter or number). This practice is one to be wary of, particularly if students are limited to reading only texts that are below the grade level goals.

Synonyms

Synonyms are words that mean the same thing. "Big" and "enormous" are synonyms.

Thesis statement

A thesis statement is one or two sentences that summarize the paper's main point, main idea, or main message.



TIPS FOR TALKING WITH TEACHERS

Literacy

- What are my 6th grader's strengths, and how do you use them in instruction?
- How do you select texts? Will my 6th grader see characters and topics that represent them, their background, and their identity? Will they learn new perspectives and about new and diverse characters through the texts you use in the classroom?
- What topics are 6th graders learning about through reading? What should my 6th grader be able to understand, write, and talk about as a result of what they have read? Topics in history? Topics in science?



- What opportunities does my 6th grader have to choose books that interest them? Are they limited to a specific **reading level**? How are you supporting any reading needs they have both within grade level text and with texts that they read on their own?
- Is my 6th grader able to write in ways that show you they understand what they are reading and learning? Are they able to use evidence from the text, present their responses in detail, and write with sufficient depth? Do they use conventions (spelling, punctuation, capitalization) and grammar rules appropriately? If not, what challenges are they facing? How can I help?
- Is my 6th grader able to speak and listen in class discussions and conversations in ways that show you they understand what they are reading and learning? Do they use evidence from the text, present their responses in detail, and speak with sufficient depth? If not, what challenges are they facing?
- How can I support and encourage my 6th grader to build a strong relationship with you and take age-appropriate responsibility for their own learning?

Math

- What topics are 6th graders learning about in math this year?
- Ask for specific updates on how your 6th grader is progressing in their understanding of the key content of the grade.



- What should my 6th grader be able to understand and talk about as a result of what they have learned?
- Is my 6th grader able to demonstrate to you that they understand what they are learning? If not, what challenges are they facing?
- How can I support and encourage my 6th grader to build a strong relationship with you and take age-appropriate responsibility for their own learning?







CONNECTING CLASSROOMS TO CAREERS



Helping middle schoolers see how what they are learning in school connects to their future is one of the best ways that families can support their kids. In addition to seeking out resources at school and in your community (community colleges are a great place to look), here are a few more ways to get started:

- Help your middle schooler think about what jobs they might like to have, and then learn more about the education and training they need for a career in that field.
 https://www.careerzone.ny.gov/views/careerzone/stem/index.jsf
- Does your middle schooler like building and fixing things? Helping people? Learn more about how interests could lead to a career.
 https://www.bls.gov/k12/students/careers/career-exploration.htm
- Have your middle schooler visit/"shadow" someone who works in a career in which they are interested. Here are some virtual site visits to get started. https://www.nebraskacareerclusters.com/
- Has your middle schooler expressed interest in a career in the military? Explore military careers here.
 https://www.asvabprogram.com/
- Find a pathway to success: A guide to help students learn how to translate their interests into one of 16 career clusters.
 https://ed.sc.gov/instruction/career-and-technical-education/career-guidance/career-cluster-guides/
- Learn the importance of math for careers and jobs: What teens need to know and how parents can help.
 https://www.niu.edu/mathmatters/careers-jobs/index.shtml
- Are there colleges your middle schooler has expressed interest in attending? Together, check out
 their admissions requirements, including their course-taking requirements. Make sure your student
 is prepared for (mostly in middle school) and taking (mostly in high school) the classes they need not
 just to graduate from high school but to be eligible for college admission.





TOOLS AND RESOURCES TO HELP



Literacy

Sources of fiction text for reading and writing:

- 36 Great Short Stories to Teach in Middle School https://www.weareteachers.com/best-short-stories-for-middle-schoolers/
- 24 Must Share Poems for Middle and High School https://www.weareteachers.com/24-must-share-poems-for-middle-school-and-high-school/

Sources of non-fiction text for reading, writing, and research:

- The New York Times Learning Network https://www.nytimes.com/section/learning
- Dogo News https://www.dogonews.com/grade/grades-6-8
- PBS NewsHour Extra: Student Voices https://www.pbs.org/newshour/extra/student-voices/

More tools:

- Text sets to learn about any subject
 https://achievethecore.org/content/upload/Text%20Set%20Guidance.pdf
- Passages to help build fluency
 https://achievethecore.org/page/887/fluency-packet-for-the-6-8-grade-band

Math

- Parent roadmap: What should children be learning in 6th Grade? How can families support their learning? https://www.cqcs.org/Page/244
- Videos and tutorials to help 6th graders understand and practice writing **expressions** with variables https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-expressions-and-variables
- A game to learn about positive and negative values on an XY graph http://toytheater.com/popcorn/
- Activities and games to help students practice ratios, coordinate planes, and other topics in Grade 6 math
 - https://teacher.desmos.com/collection/5e72b4b9feeb100f56bcac4f
- Mathematics tasks that illustrate Grade 6 math content https://achievethecore.org/category/416/mathematics-tasks?&g%5B%5D=6&sort=name
- Examining the nutritional value of fast food to determine how long it takes to "burn off" certain foods
 - https://www.mathalicious.com/lessons/newtritional-info
- A readiness check to find out how your 6th grader is doing https://bealearninghero.org/readiness-check/
- Tasks for a variety of math topics at the 6th grade level https://tasks.illustrativemathematics.org/



Family Guides: Supporting Learning in the 2020-21 School Year

ABOUT THIS GUIDE

These days, because of the COVID-19 pandemic, students are often learning at home. It's a challenge for all of us. Parents, family members, grandparents, and other caregivers are all pitching in to help students learn. So, we include all those important people when we talk about how families can support middle schoolers' learning in this quide.

Families want to know more about what their kids are learning in school, so they can support them. In the early grades, they are usually able to offer help if kids get stuck. As students get older, the content gets more challenging. Suddenly, parents and caregivers can feel like they don't have much help to offer. But that's not the case. Research confirms that families still have a big role to play in helping students learn. It's just a different role.

How can families be supportive? In addition to providing encouragement, a study of more than 50,000 students found that relating what middle and high school kids are learning in school to their future life goals is one of the most effective ways families can help. What doesn't work? Trying to be directly involved with schoolwork. It can feel to middle and high school students like you're interfering or even confusing them. And this IS the time to encourage students to take more responsibility and be more independent; helping kids take charge of their learning is important.

This guide was developed so students and their families can understand the most important literacy and math content and skills students should learn at each grade level. Of course, students will be learning in other academic subjects too, but literacy and math are the important building blocks for everything else.

"Harvard Graduate School of Education (2009). Hill: Parents need to link schoolwork to future goals. http://www.gse.harvard.edu/news/09/05/hill-parents-need-link-schoolwork-future-goals.



GRADE 7

THIS GUIDE INCLUDES

- What 7th Graders Are Learning What experts say
 is the most important content (knowledge and skills)
 for students to learn in literacy and math by the end
 of seventh grade.
- Talking About Literacy and Math with Your 7th
 Grader Ways families can talk with their 7th grader
 about what they are learning in school, find related
 resources, and connect learnings to the world
 around them.
- Education Words Sometimes, you'll hear educators use a word that has a specific meaning in schools. Those words are bolded. Understanding those terms will help you speak the same language.
- Tips for Talking with Teachers How you and your child's teachers can work together to help students grow.
- Connecting Classrooms to Careers Helping your middle schooler see the connection between classroom learning and their future.
- Tools and Resources to Help We've chosen a few internet resources that best match each grade's content.



STUDENT ACHIEVEMENT PARTNERS



LITERACY

WHAT 7TH GRADERS ARE LEARNING



Throughout the school year, 7th grade students will spend the most time working on the following topics. They should understand them well by the end of the year.

Reading, writing, speaking, and listening:

\bigcirc	Reading grade level texts smoothly and with expression, at a fluency rate of around 170 words per minute by the end of the year.
0	Asking and answering questions about stories and texts read independently. Summarizing what happened in what was read, analyzing how events or ideas are related, and citing specific evidence to show how they know. Questioning the author's or speaker's assumptions. Determining the accuracy of statements they have heard or read.
\bigcirc	Citing several sources of specific evidence from the text when analyzing a book, essay, article, or play in discussion or in writing.
\bigcirc	Evaluating the key points in something they read or hear. Asking questions. Stating their own well-supported ideas in writing or speaking.
0	Determining or clarifying the meaning of unknown words, synonyms , antonyms , and figures of speech (literary biblical, mythological allusions). Determining or clarifying the meaning of words with similar, but not identical, meaning (for example, "refined," "respectful," "polite," "diplomatic," "condescending"). This can be done based on how they are used in context, through word relationships, or by using tools like dictionaries or glossaries.
\bigcirc	Making and justifying a claim or line of argument in writing or discussion. Supporting claims with precise and relevant evidence from credible sources.
0	Showing something new they have learned from a text or about a topic. This can be in any form – speaking and conversation, letters, journals, stories, diagrams, reports, or essays – and should include sufficient additional detail that fits the form they have chosen.
\bigcirc	Writing in response to text, including an introduction and thesis statement; examples that are linked, logically



TALKING ABOUT LITERACY WITH YOUR 7TH GRADER

• If your 7th grader's reading is choppy, or they sound out every word, fluency might be an issue. Have them practice reading and re-reading a poem, short story, or passage to focus on expression and rate.

ordered, and grouped; a conclusion; and mostly accurate spelling, capitalization, and punctuation.

- Turn on closed captioning while watching TV or watching videos to allow your 7th grader to read along with the dialogue.
- Encourage your 7th grader to choose a book they want to read on their own each day. Reading lots of books over time is more important than the type of text. Let your 7th grader pick based on their interests and what makes them excited to read.
- Pick a topic to learn about together. Read books, look online, or do short research projects together. Ask what they learned in their reading. Have them present or share with you, with friends, or with other family members.
- Encourage regular writing: keeping a journal, writing letters or emails, and/or taking notes on what they are learning. Encourage your 7th grader to write to you, and then write back to them.
- Listen to podcasts together, or encourage your 7th grader to listen to podcasts of their choice and tell you
 about what they cover. There is a wide range of podcasts available. Consider the following sampling for a
 range of topics and types: "But Why: A Podcast for Curious Kids;" "Code Switch;" and "The Unexplainable
 Disappearance of Mars Patel."



MATHEMATICS

WHAT 7TH GRADERS ARE LEARNING

or \$2.50, for a new salary of \$27.50.)



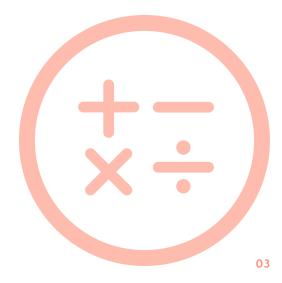
Throughout the school year, 7th grade students will spend the most time working on the following topics. They should understand them well by the end of the year.

- Analyzing proportional relationships (for example, by graphing in the coordinate plane), and distinguishing proportional relationships from other kinds of mathematical relationships (for example, buying 10 times as many items will cost you 10 times as much, but taking 10 times as many aspirin will not lower your fever 10 times as much).
 Solving percent problems including, but not limited to, tax, tips, and markups and markdowns.
 Adding, subtracting, multiplying, and dividing positive and negative numbers. Solving related word problems.
 Solving word problems that have a combination of whole numbers, fractions, and decimals. (For example, an employee making \$25 per hour receives a 10% raise. The employee will make an additional 1/10 of \$25 per hour.
- Solving **equations** (such as 1/2 (x 3) = 3/4) quickly and accurately, and writing **equations** of this kind to solve word problems. (For example, "I knocked over a carton of milk, and 3 cups were spilled before I set the carton upright again. When I poured out the remaining milk equally into two measuring cups, there was 3/4 of a cup of milk in each one. How much milk was in the carton originally?")



TALKING ABOUT MATH WITH YOUR 7TH GRADER

- Encourage your 7th grader to talk to you about the math they feel they can successfully do. What new concepts are they learning? Where do they feel they need additional challenge and/or support?
- Help your 7th grader find resources that they feel are relevant and helpful. Ask them to talk to their teachers
 about the resources, extensions, and practice activities that they find.
- Have your child name topics of study that are directly relevant to their world. For example, from Grade 7
 math, where do they see rates in the real world besides in their math materials (such as comparing costs
 between two internet plans offered in your neighborhood)?
- Encourage your 7th grader to think about jobs they might like to have when they are an adult. Help them
 learn about how math is a part of these jobs.





EDUCATION WORDS



Sometimes, you'll hear educators use a word that has a specific meaning in schools. Understanding those terms will help you speak the same language!

Allusion

An allusion is a brief, indirect reference designed to call something to mind without stating it outright.

Antonyms

Antonyms are words that mean the opposite. "Big" and "little" are antonyms.

Coordinate plane

A coordinate plane (https://www.splashlearn.com/math-vocabulary/geometry/coordinate-plane) is a two-dimensional (https://www.splashlearn.com/math-vocabulary/geometry/two-dimensional) plane formed by the intersection of a vertical number line called y-axis and a horizontal number line called x-axis. These are perpendicular lines that intersect each other at zero, and this point is called the origin (https://www.splashlearn.com/math-vocabulary/geometry/origin).

Equation

A statement that two expressions have the same value. Examples include: 97 + 16 = 100 + 13; 4x - 7 = 5; a + b = b + a.

Figures of speech

A figure of speech is a word or phrase meant to create meaning that is separate from the literal definition. A figure of speech might be used to describe, compare, exaggerate, or emphasize something to convey meaning.

Proportional relationships

A relationship between two varying quantities in which one quantity is a constant multiple of another quantity. For example, in an ant farm, the total number of legs is six times the total number of ants, so in an ant farm the number of legs is proportional to the number of ants.

Reading level

Teachers often determine the grade level at which a student is reading. But sometimes, students are then limited to reading texts at that level (typically a letter or number). This practice is one to be wary of, particularly if students are limited to reading only texts that are below the grade level goals.

Synonyms

Synonyms are words that mean the same thing. "Big" and "enormous" are synonyms.

Thesis statement

A thesis statement is one or two sentences that summarize the paper's main point, main idea, or main message.



TIPS FOR TALKING WITH TEACHERS

Literacy

- What are my 7th grader's strengths, and how do you use them in instruction?
- How do you select texts? Will my 7th grader see characters and topics that represent them, their background, and their identity? Will they learn new perspectives and about new and diverse characters through the texts you use in the classroom?
- What topics are 7th graders learning about through reading? What should my 7th grader be able
 to understand, write, and talk about as a result of what they have read? Topics in history? Topics in
 science?



- What opportunities does my 7th grader have to choose books that interest them? Are they limited to a specific **reading level**? Do they have any reading challenges, either with grade level text or with texts that they read on their own?
- Is my 7th grader able to write in ways that show you they understand what they are reading and learning? Are they able to use evidence from the text, present their responses in detail, and write with sufficient depth? Do they use conventions (spelling, punctuation, capitalization) and grammar rules appropriately? If not, what challenges are they facing? How can I help?
- Is my 7th grader able to speak and listen in class discussions and conversations in ways that show you they understand what they are reading and learning? Do they use evidence from the text, present their responses in detail, and speak with sufficient depth? If not, what challenges are they facing?
- How can I support and encourage my 7th grader to build a strong relationship with you and take age-appropriate responsibility for their own learning?

Math

- What topics are 7th graders learning about in math?
- Ask for specific updates on how your 7th grader is progressing in their understanding of the key content of the grade.
- What should my 7th grader be able to understand and talk about as a result of what they have learned?
- Is my 7th grader able to demonstrate to you that they understand what they are learning? If not, what challenges are they facing?
- How can I support and encourage my 7th grader to build a strong relationship with you and take age-appropriate responsibility for their own learning?







ONNECTING CLASSROOMS TO CAREERS



Helping middle schoolers see how what they are learning in school connects to their future is one of the best ways that families can support their kids. In addition to seeking out resources at school and in your community (community colleges are a great place to look), here are a few more ways to get started:

- Help your middle schooler think about what jobs they might like to have, and then learn more about the education and training they need for a career in that field. https://www.careerzone.ny.gov/views/careerzone/stem/index.jsf
- Does your middle schooler like building and fixing things? Helping people? Learn more about how interests could lead to a career. https://www.bls.gov/k12/students/careers/career-exploration.htm
- Have your middle schooler visit/"shadow" someone who works in a career in which they are interested. Here are some virtual site visits to get started. https://www.nebraskacareerclusters.com/
- Has your middle schooler expressed interest in a career in the military? Explore military careers here. https://www.asvabprogram.com/
- Find a pathway to success: A guide to help students learn how to translate their interests into one of 16 career clusters. https://ed.sc.gov/instruction/career-and-technical-education/career-guidance/career-clusterquides/
- Learn the importance of math for careers and jobs: What teens need to know and how parents https://www.niu.edu/mathmatters/careers-jobs/index.shtml
- Are there colleges your middle schooler has expressed interest in attending? Together, check out their admissions requirements, including their course-taking requirements. Make sure your student is prepared for (mostly in middle school) and taking (mostly in high school) the classes they need not just to graduate from high school but to be eligible for college admission.





TOOLS AND RESOURCES TO HELP



Literacy

Sources of fiction text for reading and writing:

- 36 Great Short Stories to Teach in Middle School https://www.weareteachers.com/best-short-stories-for-middle-schoolers/
- 24 Must Share Poems for Middle and High School https://www.weareteachers.com/24-must-share-poems-for-middle-school-and-high-school/

Sources of non-fiction text for reading, writing, and research:

- The New York Times Learning Network https://www.nytimes.com/section/learning
- Dogo News https://www.dogonews.com/grade/grades-6-8
- PBS NewsHour Extra: Student Voices https://www.pbs.org/newshour/extra/student-voices/

More tools:

- Text sets to learn about any subject https://achievethecore.org/content/upload/Text%20Set%20Guidance.pdf
- Passages to help build fluency
 https://achievethecore.org/page/887/fluency-packet-for-the-6-8-grade-band

Math

- Parent roadmap: What should children be learning in 7th Grade? How can families support their learning?
 https://www.cgcs.org/Page/244
- Videos and tutorials to help 7th graders understand and practice using rates and proportional relationships https://www.khanacademy.org/math/cc-seventh-grade-math/cc-7th-ratio-proportion
- Activities and games to help students practice variables, graphing, and other topics in Grade 7 math https://teacher.desmos.com/collection/5e72d28669f1f80f4025bcc1
- Two activities to help students understand proportional relationships and decimal expansion of fractions
 - https://achievethecore.org/category/416/mathematics-tasks?&g%5B%5D=7&sort=name
- Would sprinter Usain Bolt run as fast if he were not so tall? Use proportions to find out. https://www.mathalicious.com/lessons/on-your-mark
- A readiness check to find out how your 7th grader is doing https://bealearninghero.org/readiness-check/
- Tasks for ratios and proportional relationships, expressions and equations, and a variety of other math topics at the 7th grade level https://tasks.illustrativemathematics.org/



Family Guides: Supporting Learning in the 2020-21 School Year

ABOUT THIS GUIDE

These days, because of the COVID-19 pandemic, students are often learning at home. It's a challenge for all of us. Parents, family members, grandparents, and other caregivers are all pitching in to help students learn. So, we include all those important people when we talk about how families can support middle schoolers' learning in this quide.

Families want to know more about what their kids are learning in school, so they can support them. In the early grades, they are usually able to offer help if kids get stuck. As students get older, the content gets more challenging. Suddenly, parents and caregivers can feel like they don't have much help to offer. But that's not the case. Research confirms that families still have a big role to play in helping students learn. It's just a different role.

How can families be supportive? In addition to providing encouragement, a study of more than 50,000 students found that relating what middle and high school kids are learning in school to their future life goals is one of the most effective ways families can help. What doesn't work? Trying to be directly involved with schoolwork. It can feel to middle and high school students like you're interfering or even confusing them. And this IS the time to encourage students to take more responsibility and be more independent; helping kids take charge of their learning is important.

This guide was developed so students and their families can understand the most important literacy and math content and skills students should learn at each grade level. Of course, students will be learning in other academic subjects too, but literacy and math are the important building blocks for everything else.

"Harvard Graduate School of Education (2009). Hill: Parents need to link schoolwork to future goals. http://www.gse.harvard.edu/news/09/05/hill-parents-need-link-schoolwork-future-goals.



GRADE 8

THIS GUIDE INCLUDES

- What 8th Graders Are Learning What experts say is the most important content (knowledge and skills) for students to learn in literacy and math by the end of eigth grade.
- Talking About Literacy and Math with Your 8th Grader – Ways families can talk with their 8th grader about what they are learning in school, find related resources, and connect learnings to the world around them.
- Education Words Sometimes, you'll hear educators use a word that has a specific meaning in schools. Those words are bolded. Understanding those terms will help you speak the same language.
- Tips for Talking with Teachers How you and your child's teachers can work together to help students grow.
- Connecting Classrooms to Careers Helping your middle schooler see the connection between classroom learning and their future.
- Tools and Resources to Help We've chosen a few internet resources that best match each grade's content.



STUDENT ACHIEVEMENT PARTNERS



LITERACY

WHAT 8TH GRADERS ARE LEARNING



Throughout the school year, 8th grade students will spend the most time working on the following topics. They should understand them well by the end of the year.

Reading, writing, speaking, and listening:

\bigcirc	Reading grade level texts smoothly and with expression, at a fluency rate of around 175 words per minute by the end of the year.
	Asking and answering questions about stories and texts read independently. Summarizing what happened in what was read; analyzing how a text makes connections or distinctions between ideas, characters, or events; and citing specific evidence to show how they know. Questioning the author's or speaker's assumptions. Determining the accuracy of statements they have heard or read.
\bigcirc	Citing the evidence that most strongly supports an analysis of what is explicitly stated and/or implied from a book, article, poem, or play.
\bigcirc	Analyzing where materials on the same topic disagree on matters of fact, interpretation, or point of view.
\bigcirc	Determining or clarifying the meaning of unknown words, synonyms, antonyms, and figures of speech (irony, puns). Determining or clarifying the meaning of words with similar but not identical meaning (for example, "bullheaded," "willful," "firm," "persistent," "resolute") based on how they are used in context.
\bigcirc	Making and justifying a claim or argument in writing or discussion. Supporting claims with precise and relevant evidence from credible sources. Demonstrating a thorough understanding of the topic or text.
\bigcirc	Showing something new they have learned from a text or about a topic. This can be in any form – speaking and conversation, letters, journals, stories, diagrams, reports, or essays – and should include sufficient additional detail that fits the form they have chosen.
\bigcirc	Writing in response to text, including an introduction and thesis statement; examples that are linked, logically



TALKING ABOUT LITERACY WITH YOUR 8TH GRADER

• Encourage your 8th grader to choose a book they want to read on their own each day. Reading lots of books over time is more important than the type of text. Let your 8th grader pick based on their interests and what makes them excited to read.

ordered, and grouped; a conclusion; and mostly accurate spelling, capitalization, and punctuation.

- Pick a topic to learn about together. Read books, look online, or do short research projects together. Ask what they learned in their reading. Have them present or share with you, with other friends, or with family members.
- Encourage regular writing: keeping a journal, writing letters or emails, and/or taking notes on what they are learning. Encourage your 8th grader to write to you, and then write back to them.
- Listen to podcasts together, or encourage your 8th grader to listen to podcasts of their choice and tell you
 about what they cover. There is a wide range of podcasts available. Consider the following sampling for a
 range of topics and types: "But Why: A Podcast for Curious Kids;" "Code Switch;" and "The Unexplainable
 Disappearance of Mars Patel."



MATHEMATICS

HAT 8TH GRADERS ARE LEARNING



Throughout the school year, 8th grade students will spend the most time working on the following topics. They should understand them well by the end of the year.

\bigcirc	Applying properties of integer exponents to generate equivalent expressions. Using square roots to represent solutions to equations.
\bigcirc	Solving linear equations in one variable. For example, $(-x + 5(x + 1/3) = 2x - 8)$ and in word problems like, "You rent a bike for \$10 for the 1st hour, and each additional hour is \$5.50. What is the cost of renting the bike for 6 hours?"
\bigcirc	Analyzing and solving systems of linear equations $(x + 6y = -1)$ and $(x + 6y = -1)$, emphasizing the real-world reasons these equations were created.
\bigcirc	Understanding functions (rules that assign to each input exactly one output); analyzing functions represented in different ways (for example, table, graph, verbal description, equation); interpreting equations for linear and nonlinear functions by graphing; and using functions to solve real-world problems. (For example, analyze and graph a company's profit over a set number of months. If in one month a company profited \$1,200, what is the slope or change when, after five months, the company profits \$5,800?)
\bigcirc	Applying the Pythagorean Theorem to solve real-world problems.



TALKING ABOUT MATH WITH YOUR 8TH GRADER

- Encourage your 8th grader to talk to you about the math they feel they can successfully do. What new concepts are they are learning? Where do they feel they need additional challenge and/or support?
- Help your 8th grader find resources that they feel are relevant and helpful. Ask them to talk to their teachers about the resources, extensions, and practice activities that they find.
- Have your child name topics of study that are directly relevant to their world. For example, from Grade 8 math, can they describe the relationship between quantities in the world around them (such as comparing water levels in a collection of cylinders to the number of pebbles placed in each cylinder)?
- Encourage your 8th grader to think about jobs they might like to have when they are an adult. Help them learn about how math is a part of these jobs.





EDUCATION WORDS



Sometimes, you'll hear educators use a word that has a specific meaning in schools. Understanding those terms will help you speak the same language!

Antonyms

Antonyms are words that mean the opposite. "Big" and "little" are antonyms.

Exponent

The exponent of a number indicates how many times to use that number in multiplication. It is written as a small number to the right and above the base number. In this example, $8^2 = 8 \times 8 = 64$, the exponent "2" says to use the 8 two times in multiplication.

Figures of speech

A figure of speech is a word or phrase meant to create meaning that is separate from the literal definition. A figure of speech might be used to describe, compare, exaggerate, or emphasize something to convey meaning.

Function

A relationship where each input has a single output.

x (input)	y (output)
3	5
1	1
-2	-5
-3	-7

Integer

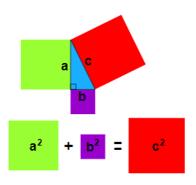
An **integer** is a number with no fractional part (no decimals). This would include the positive and negative counting numbers and zero (-3,-2, -1, 0, 1, 2, 3).

Linear equation

An equation that makes a straight line when it is graphed.

Pythagorean Theorem

The Pythagorean Theorem is a2 + b2 = c2, as illustrated below.





EDUCATION WORDS (continued)

Square root

A square root of a number is a value that, when multiplied by itself, gives the number. The square root symbol is $\sqrt{\ }$, which always means the positive square root. For example, $4 \times 4 = 16$, so a square root of 16 is 4; and $\sqrt{36} = 6$ because $6 \times 6 = 36$.

Reading level

Teachers often determine the grade level at which a student is reading. But sometimes, students are then limited to reading texts at that level (typically a letter or number). This practice is one to be wary of, particularly if students are limited to reading only texts that are below the grade level goals.

Synonyms

Synonyms are words that mean the same thing. "Big" and "enormous" are synonyms.

Thesis statement

A thesis statement is one or two sentences that summarize the paper's main point, main idea, or main message.

TIPS FOR TALKING WITH TEACHERS

Literacy

- What are my 8th grader's strengths, and how do you use them in instruction?
- How do you select texts? Will my 8th grader see characters and topics that represent them, their background, and their identity? Will they learn new perspectives and about new and diverse characters through the texts you use in the classroom?
- What topics are 8th graders learning about through reading? What should my 8th grader be able
 to understand, write, and talk about as a result of what they have read? Topics in history? Topics in
 science?



- What opportunities does my 8th grader have to choose books that interest them? Are they limited
 to a specific reading level? Do they have any reading challenges, either with grade level text or
 with texts that they read on their own?
- Is my 8th grader able to write in ways that show you they understand what they are reading and learning? Are they able to use evidence from the text, present their responses in detail, and write with sufficient depth? Do they use conventions (spelling, punctuation, capitalization) and grammar rules appropriately? If not, what challenges are they facing? How can I help?
- Is my 8th grader able to speak and listen in class discussions and conversations in ways that show you they understand what they are reading and learning? Do they use evidence from the text, present their responses in detail, and speak with sufficient depth? If not, what challenges are they facing?
- How can I support and encourage my 8th grader to build a strong relationship with you and take age-appropriate responsibility for their own learning?



TIPS FOR TALKING WITH TEACHERS (continued)

Math

- Encourage your 8th grader to talk to you about the math they feel they can successfully do. What
 new concepts are they are learning? Where do they feel they need additional challenge and/or
 support?
- Help your 8th grader find resources that they feel are relevant and helpful. Ask them to talk to their teachers about the resources, extensions, and practice activities that they find.
- Have your child name topics of study that are directly relevant to their world. For example, from
 Grade 8 math, can they describe the relationship between quantities in the world around them
 (such as comparing water levels in a collection of cylinders to the number of flowers placed in
 each cylinder)?
- Encourage your 8th grader to think about jobs they might like to have when they are an adult. Help them learn about how math is a part of these jobs.

CONNECTING CLASSROOMS TO CAREERS



Helping middle schoolers see how what they are learning in school connects to their future is one of the best ways that families can support their kids. In addition to seeking out resources at school and in your community (community colleges are a great place to look), here are a few more ways to get started:

- Help your middle schooler think about what jobs they might like to have, and then learn more about
 the education and training they need for a career in that field.
 https://www.careerzone.ny.gov/views/careerzone/stem/index.jsf
- Does your middle schooler like building and fixing things? Helping people? Learn more about how interests could lead to a career.
 https://www.bls.gov/k12/students/careers/career-exploration.htm
- Have your middle schooler visit/"shadow" someone who works in a career in which they are interested. Here are some virtual site visits to get started. https://www.nebraskacareerclusters.com/
- Has your middle schooler expressed interest in a career in the military? Explore military careers here.
 - https://www.asvabprogram.com/
- Find a pathway to success: A guide to help students learn how to translate their interests into one of 16 career clusters.
 - https://ed.sc.gov/instruction/career-and-technical-education/career-guidance/career-cluster-guides/
- Learn the importance of math for careers and jobs: What teens need to know and how parents can help.
 - https://www.niu.edu/mathmatters/careers-jobs/index.shtml
- Are there colleges your middle schooler has expressed interest in attending? Together, check out
 their admissions requirements, including their course-taking requirements. Make sure your student
 is prepared for (mostly in middle school) and taking (mostly in high school) the classes they need not
 just to graduate from high school but to be eligible for college admission.



TOOLS AND RESOURCES TO HELP



Literacy

Sources of fiction text for reading and writing:

- 36 Great Short Stories to Teach in Middle School https://www.weareteachers.com/best-short-stories-for-middle-schoolers/
- 24 Must Share Poems for Middle and High School https://www.weareteachers.com/24-must-share-poems-for-middle-school-and-high-school/

Sources of non-fiction text for reading, writing, and research:

- The New York Times Learning Network https://www.nytimes.com/section/learning
- Dogo News https://www.dogonews.com/grade/grades-6-8
- PBS NewsHour Extra: Student Voices https://www.pbs.org/newshour/extra/student-voices/

More tools:

- Text sets to learn about any subject https://achievethecore.org/content/upload/Text%20Set%20Guidance.pdf
- Passages to help build fluency
 https://achievethecore.org/page/887/fluency-packet-for-the-6-8-grade-band

Math

- Parent roadmap: What should children be learning in 8th Grade? How can families support their learning? https://www.cqcs.org/Page/244
- Videos and tutorials to help 8th graders understand and practice using linear equations and functions https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-linear-equations-functions
- Activities and games to help students practice linear functions, whole number exponents, and other topics in Grade 8 math https://teacher.desmos.com/collection/5e72d58a20ae4e061b73b546
- Two activities to engage students with linear functions, variables, and equations https://achievethecore.org/category/416/mathematics-tasks?&g%5B%5D=8&sort=name
- How much does that pizza really cost? Use slope, y-intercept, and linear equations to calculate. https://www.mathalicious.com/lessons/domino-effect
- A readiness check to find out how your 8th grader is doing https://bealearninghero.org/readiness-check/
- Tasks for real-world math problems, including the volume of cylinders, cones, and spheres and a
 variety of other math topics at the 8th grade level
 https://tasks.illustrativemathematics.org/



Family Guides: Supporting Learning in the 2020-21 School Year

ABOUT THIS GUIDE

These days, because of the COVID-19 pandemic, students are often learning at home. It's a challenge for all of us. While parents, family members, grandparents, and other caregivers are all pitching in, we know students don't always have the information and resources they need. So, we include all those important people when we talk about how families can support high schooler's learning in this guide.

Families want to know more about what their teens are learning in school, so they can support them. In the early grades, they are usually able to offer help. Then, students get older, the content gets more challenging; and students gain ownership over their learning. Suddenly, parents and caregivers can feel like they don't have much help to offer. But that's not the case. Research confirms that families still have a big role to play in helping students learn. It's just a different role.

Especially now, as more learning is happening away from school buildings and on-line, how can families be supportive? In addition to providing encouragement, a study of more than 50,000 students found that relating what middle and high school kids are learning in school to their future life goals is one of the most effective ways families can help. What doesn't work? Trying to be directly involved with schoolwork. It can feel to high schoolers like you're interfering or even confusing them. And this IS the time to encourage students to take more responsibility and be more independent.

This guide was developed so students and their families can understand the most important literacy (in English and other subjects too) content and skills students should learn in high school.

 $\label{thm:condition} \begin{tabular}{l} Harvard Graduate School of Education (2009). Hill: Parents need to link schoolwork to future goals. \\ http://www.gse.harvard.edu/news/09/05/hill-parents-need-link-schoolwork-future-goals. \\ \end{tabular}$

schoolers to ensure Connecti schoolers learning a Tools and few intern school co This work is licensed under the Creative Commons Attribution 4.0 International License. http://creativecommons.org/licenses/by/4.0/.

HIGH SCHOOL Literacy

THIS GUIDE INCLUDES

- What High Schoolers Are Learning What experts say is the most important content (knowledge and skills) for students to learn in literacy during high school.
- Talking About Literacy with your High Schooler Ideas for families and their teens to talk about school.
- Education Words Sometimes, educators and students use words that have a specific meaning in school. Those words are bolded. Understanding those terms will help you speak the same language.
- Tips for Talking with Teachers How high schoolers, parents, and teachers can work together to ensure success.
- Connecting Classrooms to Careers Helping high schoolers see the connection between classroom learning and their future.
- Tools and Resources to Help We've chosen a few internet resources that best match high school content.



STUDENT ACHIEVEMENT PARTNERS



WHAT HIGH SCHOOLERS ARE LEARNING



Though course titles and content varies, there are some general statements that can be made about literacy coursework in the United States. Typically, high school students take English courses in all four years of high school. These courses are generally titled English I-IV, Freshman English, Sophomore English, etc. Some schools offer International Baccalaureate (IB) coursework for English, and many require a communications studies course. As students progress to later years of high school, additional options for coursework that count towards English credit may also be available (for example, American Literature, College English, Journalism, Rhetoric, etc.), as might Advanced Placement (AP) English courses.

Regardless of the course and the focus of the content title, one key idea holds true: high schoolers should be engaged in reading, writing, and speaking about **grade level texts** of all kinds.

It is important to remember that English courses only account for a small portion of a student's high school day. Reading, writing, and speaking about big ideas from texts should not be limited to English class. Students should be given the opportunity to interact with primary sources in history courses, to read the content of the discipline in the sciences, and to learn from the technical documents necessary to succeed in career and technical education courses, just to name a few examples. High schools should be engaging students in texts across all subjects.

Below are some of the specific skills high school students should be able to do in English class as well as when reading or writing in other subjects throughout high school.

Reading, writing, speaking, and listening:

\bigcirc	Reading (and rereading) grade level texts smoothly and with expression, at a fluency rate of around 175 words per minute by the end of the year.
\bigcirc	Tracking an author's position, noting if the reasoning is valid, and evidence is sufficient. Identifying false statements and reasoning.
\bigcirc	Analyzing where materials on the same topic disagree. Are the disagreements on matters of fact, interpretation, and/or point of view?
\bigcirc	Figuring out the meaning of unknown words in text by using context, word relationships, or tools like dictionaries and glossaries. Determining or clarifying the meaning of unknown words, synonyms , antonyms , figures of speech (irony, puns), and words that are similar but not identical (for example, bullheaded, willful, firm, persistent resolute) based on how they are used in context.
\bigcirc	Making and justifying a claim in writing or discussion. Supporting claims with precise and relevant evidence from credible sources. Demonstrating a thorough understanding of the topic or text.
\bigcirc	Citing the evidence that most strongly supports an analysis of what is explicitly stated or implied from a book, article, poem, or play.
\bigcirc	Showing something new they have learned from a text or about a topic. This can be in any form – speaking and conversation, letters, journals, stories, reports, diagrams, or essays – and should include sufficient additional detail that fits the form they have chosen.
\bigcirc	Writing essays or other papers in response to text, with an introduction and thesis statement; examples that are linked, logically ordered, and grouped; a conclusion; and mostly accurate spelling, capitalization,





TALKING ABOUT LITERACY WITH HIGH SCHOOLERS

High school is an opportunity for students to take more ownership over their learning. The content students learn will become increasingly sophisticated. Acknowledging a teen's interests throughout this time can help to engage them in grade-level reading and writing. The more grade level texts they read and the more opportunities they have to write in response to these kinds of texts, the more they will improve in their reading comprehension and writing abilities.

In class, teens will interact far more with complex ideas across different genres or categories, evaluate arguments, and expand their literary and cultural knowledge. They will also write and participate in conversations that challenge them to assert and defend claims on a given topic. These skills will take them far, not only with literacy, but in their science, social studies, and math classes.

Below are a few tips on how to encourage your teen to consistently read and write.

- Encourage regular writing: Students can keep a writing journal; they can write emails; they can take notes about what they are learning; and/or they can research a given topic. Consistent, but varied, writing (for example, short, on-demand pieces and longer, multi-day pieces) will help them to make connections continuously. Writing specifically about what they are reading is an excellent way to improve reading comprehension and knowledge.
- Encourage regular reading: Students can read a variety of texts, ranging from newspaper articles and graphic novels to novels and plays. At this age, students should also be engaging in both wide and deep reading of fiction and non-fiction. Encourage them to choose content-rich and complex texts to help them improve their comprehension and increase their academic vocabulary. Give them options and allow them to choose what excites and interests them.
- Encourage the use of technology as a way for students to engage in reading, writing, speaking, and listening: Students can listen to podcasts and discuss current events; they can use social media to increase their understanding on a given topic; and/or they can blog about issues they care deeply about, etc. High schoolers use social media all the time, and they can use it for learning. They can develop media literacy as they are reading. Ask who wrote it and why, evaluate the specific claims made, and think about the impact of the text on readers.





EDUCATION WORDS



Sometimes, you'll hear educators use a word that has a specific meaning in schools. Understanding those terms will help you speak the same language!

Academic vocabulary

Words used in academic text, but not in everyday conversation. These words can be found in academic texts, technical writing, and literary texts. The more academic language students can understand, the easier it will be to read complex texts.

Anchor texts

Texts used to model relevant reading skills and strategies.

Antonyms

Antonyms are words that mean the opposite. "Big" and "little" are antonyms.

Claims

Statements that assert something to be true. Claims should be backed up with evidence.

Close read

A read of a complex text with a focus on **academic vocabulary** and text features. While the teacher can deepen knowledge of this text, students then have the opportunity to discuss, annotate, defend their answers with evidence, and demonstrate what they have read.

Figures of speech

A figure of speech is a word or phrase meant to create meaning that is separate from the literal definition. A figure of speech might be used to describe, compare, exaggerate, or emphasize something to convey meaning.

Fluency

The ability to read with word identification accuracy, pacing, and prosody (expression).

Grade level text

Texts are determined to be appropriate for a grade level based on the content of the text and its complexity, as calculated by Lexile or other computer-based rating systems. Lexile (www.lexile.com) is the most commonly used source. Texts at 1050 - 1335 Lexile levels are considered appropriately complex for grades 9 - 10 and 1185 - 1385 for grades 11 - 12.

Synonyms

Synonyms are words that mean the same thing. "Big" and "enormous" are synonyms.

Text-dependent questions

Questions that can only be answered by referring back to a given text. These questions support students in their ability to use evidence from text so they can present careful analysis, well-defended claims, and clear information.



TIPS FOR TALKING WITH TEACHERS

At the high school level, reading and writing becomes increasingly more complex and sophisticated. Make sure students have multiple opportunities to engage with **grade level texts** so they can improve in **fluency** and comprehension skills.

Throughout high school, students can use the following questions both as a self-assessment and for asking all their teachers about their performance:

- What was I able to understand, write, and talk about as a result of what I read and learned?
- Was I able to write in ways that demonstrated that I understood what I am reading and learning?
- Was I able to use evidence from the text, elaborate on my responses, and write with sufficient depth?
- Did I use conventions (spelling, punctuation, capitalization) and grammar rules appropriately?
- Was I able to speak and listen in class discussions and conversations in ways that demonstrated that I understood what I was reading and learning?
- Was I able to use evidence from the text, elaborate on my responses, and speak with sufficient depth?
- What strengths do I bring to the classroom?

Families can also inquire about the content students will learn in a variety of classes:

- What new perspectives will be learned about throughout the year?
- Are there specific anchor texts that can support students with reading comprehension?
- Are there specific texts you would recommend based on student interests?
- What texts will the class read? Will they represent a diverse set of perspectives?
- Will any of the texts read represent the students in the classroom?







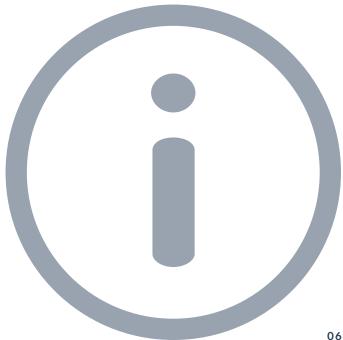


CONNECTING CLASSROOMS TO CAREERS



Helping high schoolers see how what they are learning in school connects to their future is one of the best ways that families can support their kids. In addition to seeking out resources at school and in your community (community colleges are a great place to look), here are a few more ways to get started:

- Help your high schooler think about what jobs they might like to have, and then learn more about the education and training they need for a career in that field. https://www.careerzone.ny.gov/views/careerzone/stem/index.jsf
- Does your high schooler like building and fixing things? Helping people? Learn more about how interests could lead to a career. https://www.bls.gov/k12/students/careers/career-exploration.htm
- Have your high schooler visit/"shadow" someone who works in a career in which they are interested. Here are some virtual site visits to get started. https://www.nebraskacareerclusters.com/
- Has your high schooler expressed interest in a career in the military? Explore military careers here. https://www.asvabprogram.com/
- Find a pathway to success: A guide to help students learn how to translate their interests into one of 16 career clusters. https://ed.sc.gov/instruction/career-and-technical-education/career-guidance/career-clusterquides/
- Learn the importance of math for careers and jobs: What teens need to know and how parents can help.
 - https://www.niu.edu/mathmatters/careers-jobs/index.shtml
- Are there colleges your high schooler has expressed interest in attending? Together, check out their admissions requirements, including their course-taking requirements. Make sure your student is prepared for and taking the classes they need not just to graduate from high school but to be eligible for college admission.





TOOLS AND RESOURCES TO HELP



- Developed by the Mississippi Department of Education, these high-quality, rigorous texts represent varying cultures, genres, and facets of the human experience https://www.mdek12.org/sites/default/files/Offices/MDE/OAE/OEER/Equipped/equipped_9-12th.pdf
- The New York Times Student Opinion invites students to comment on daily questions in response to content
 - https://www.nytimes.com/column/learning-student-opinion
- National Public Radio (NPR) broadcasts a number of excellent podcasts featuring topics ranging from economics (Planet Money) and politics (The NPR Politics Podcast) to science (Hidden Brain) and technology (Augmented Humanity) https://www.npr.org/podcasts
- Achieve the Core's Reading Fluency Packet offers 40 passages to help students practice their reading fluency https://achievethecore.org/page/1022/fluency-packet-for-the-9-10-grade-band
- In addition to reading, keeping a reading journal helps students fully engage with what they are reading. They can include personal observations, questions, research notes, and/or observations about broader themes to help them build their comprehension.

 https://www.uwb.edu/wacc/what-we-do/resources/reading/journals
- Thoughtful writing prompts support students in developing their writing skills and help them to
 deepen their critical thinking and reflection about a given topic. The New York Times provides 1000
 prompts for students on a variety of different topics.
 https://www.nytimes.com/2018/04/12/learning/over-1000-writing-prompts-for-students.html

MY NOTES AND QUESTIONS	

Family Guides: Supporting Learning in the 2020-21 School Year

ABOUT THIS GUIDE

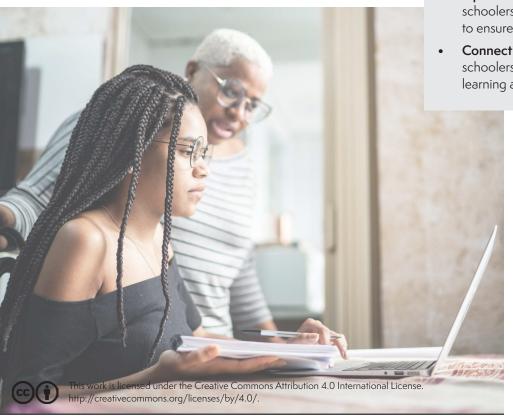
These days, because of the COVID-19 pandemic, students are often learning at home. It's a challenge for all of us. While parents, family members, grandparents, and other caregivers are all pitching in, we know students don't always have the information and resources they need. So, we include all those important people when we talk about how families can support high schooler's learning in this guide.

Families want to know more about what their teens are learning in school, so they can support them. In the early grades, they are usually able to offer help. Then, students get older, the content gets more challenging; and students gain ownership over their learning. Suddenly, parents and caregivers can feel like they don't have much help to offer. But that's not the case. Research confirms that families still have a big role to play in helping students learn. It's just a different role.

Especially now, as more learning is happening away from school buildings and on-line, how can families be supportive? In addition to providing encouragement, a study of more than 50,000 students found that relating what middle and high school kids are learning in school to their future life goals is one of the most effective ways families can help. What doesn't work? Trying to be directly involved with schoolwork. It can feel to high schoolers like you're interfering or even confusing them. And this IS the time to encourage students to take more responsibility and be more independent.

This guide was developed so students and their families can understand the most important math content and skills students should learn in high school.

 $\label{thm:condition} \begin{tabular}{l} Harvard Graduate School of Education (2009). Hill: Parents need to link schoolwork to future goals. \\ http://www.gse.harvard.edu/news/09/05/hill-parents-need-link-schoolwork-future-goals. \\ \end{tabular}$



HIGH SCHOOL Math

THIS GUIDE INCLUDES

- What High Schoolers Are Learning What experts say is the most important content (knowledge and skills) for students to learn in math during high school – and a few internet resources to help learn it.
- Talking About Math with your High Schooler Ideas for families and their teens to talk about school.
- Education Words Sometimes, educators and students use words that have a specific meaning in school. Those words are bolded. Understanding those terms will help you speak the same language.
- Tips for Talking with Teachers How high schoolers, parents, and teachers can work together to ensure success.
- Connecting Classrooms to Careers Helping high schoolers see the connection between classroom learning and their future.



STUDENT ACHIEVEMENT PARTNERS



There are two math course pathways most commonly taught in U.S. high schools. One is the traditional course sequence of Algebra I, Geometry, and Algebra II. In recent years, some school have transitioned to teaching an integrated sequence, often called Integrated Math I, Integrated Math II, and Integrated Math III. The same content is taught in both pathways; it's just in a different order and often at different times. Since these are the two most common approaches in U.S. high schools, we provide information on both below, by course title.

It's worth noting that some students will begin this three-year sequence while they are in middle school, and many students will take additional math courses after they've completed this core set of courses. In addition to checking your state's and district's high school course graduation requirements, it's also important that students think about their post-high school plans to determine how much more math they should take and which additional courses match their future goals.

TRADITIONAL COURSE SEQUENCE

ALGEBRA I: WHAT HIGH SCHOOLERS ARE LEARNING



Students taking Algebra I will spend the most time working on the following topics. By the end of the year, they should understand the topics well to provide a foundation for success in additional coursework and as preparation for both college and career.

- Creating equations and systems of equations to solve problems in context. For example, on June 21st, the day was four and a half hours longer than the previous night. How long was the previous night? Present the steps clearly and logically so that your classmates can follow along with your solution.
- Creating, analyzing, and applying functions. This work involves using equations, graphs, and tables that represent functions in different ways. The emphasis is on **linear**, **quadratic**, and **exponential functions**. For example, a mathematical model for farming predicts how much grain, y, will be harvested if a given amount of fertilizer, x, is applied. The model for the relationship is $y = 676 + 3.4x (0.01754)x^2$, where x and y are measured in kilograms per acre or kg/acre. Is more fertilizer always better in this model? Estimate the best amount of fertilizer to use. (A graph of the relationship can be seen at https://www.desmos.com/calculator/16ua1no8td.)
- Reasoning quantitatively and using units to solve problems. For example, a nurse needs to know how much of a medicine to give a child who weighs 10 kg. The child should receive 25 mg of medicine for each kg of body weight. The medicine is packaged in bottles of liquid with 750 mg of medicine per 15 ml of liquid. How many ml of liquid should the child receive?
- Interpreting and identifying ways to rewrite expressions, such as the difference of squares, factoring out a common **monomial**, or regrouping while writing expressions in equivalent forms to solve problems. For example, rewriting $2x^23x^3y^2$ as $6x^5y^2$ or rewriting $(3t^2 + t) + (2 + t^2)$ as $4t^2 + t + 2$.
- Interpreting and comparing shape, center, and spread of realistic data sets to summarize, represent, and interpret categorical and quantitative data.



ALGEBRA I: TOOLS AND RESOURCES TO HELP



- Here is a readiness check on how well your student is applying linear functions through a game https://www.mathgames.com/skill/8.69-algebra-linear-function
- Videos on how to solve systems of equations using various methods http://www.mathtv.com/topic/algebra/systems-of-equations
- Practice activities to write linear functions based on a graph https://www.desmos.com/calculator/d0kidwd2uw
- This online game provides practice with recognizing the graphs of quadratic functions by matching
 a given quadratic function with the graph that represents it
 http://www.purposegames.com/game/quadratic-functions-quiz
- Analyze the differences between exponential and linear functions in a series of activities https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:exponential-growth-decay
- Activities, videos, and tutorials using units to reason quantitatively
 https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:working-units/x2f8bb11595b61c86:word-problems-multiple-units/e/units
- Practice your skills in factoring various types of quadratic expressions through a game https://www.mangahigh.com/en/games/wrecksfactor
- Activities for comparing and understanding data sets https://www.khanacademy.org/math/statistics-probability
- Videos and tutorials about quantitative data https://study.com/academy/lesson/what-is-quantitative-data.html

GEOMETRY: WHAT HIGH SCHOOLERS ARE LEARNING



Students taking Geometry will spend the most time working on the following topics. By the end of the year, they should understand the topics well to provide a foundation for success in additional coursework and as preparation for both college and career.

	· ·
\bigcirc	Understanding congruence and similarity in terms of plane transformation . Using congruence and similarity concepts to prove theorems, especially theorems about transversals , triangles, and quadrilaterals .
\bigcirc	Using area and volume formulas to solve real-world and mathematical problems of geometric measurement. For example, using volume formulas for cylinders, pyramids, cones, or spheres to solve problems, and applying geometric concepts to model situations.
\bigcirc	Defining trigonometric ratios and solving real-world problems involving right triangles.
\bigcirc	Working with geometric shapes in the coordinate plane, including by deriving the equation of a circle .
\bigcirc	Understanding independent and conditional probability , and using them to interpret data and compute probabilities of compound events .



GEOMETRY: TOOLS AND RESOURCES TO HELP



- Investigate congruence by manipulating the parts (sides and angles) of a triangle https://www.nctm.org/Classroom-Resources/Illuminations/Interactives/Congruence-Theorems/
- Here's a game to engage with transformations or a combination of transformations https://nrich.maths.org/transformationgame
- This website reviews the relationship between angles, parallel lines, and transversals to help you lay
 the foundation for proofs
 https://tutors.com/math-tutors/geometry-help/proving-lines-are-parallel
- Try out this applet to prove triangle congruence https://www.geogebra.org/m/d9HrmyAp#material/wYtNhjKr
- Concepts of volume are introduced through a unique and memorable song https://www.flocabulary.com/unit/volume-cone-cylinder-sphere/
- Explore the trigonometric ratios to find an unknown side or angle in a right triangle
 http://www.learnalberta.ca/content/mejhm/index.html?l=0&ID1=AB.MATH.JR.SHAP&ID2=AB.

 MATH.JR.SHAP.TRIG&lesson=html/object_interactives/trigonometry/use_it.html
- Videos that show you how to derive the equation of a circle in the coordinate plane https://www.ck12.org/geometry/circles-in-the-coordinate-plane/lesson/circles-in-the-coordinate-plane-geom/
- This series of videos takes you through multiple lessons on conditional probability https://www.onlinemathlearning.com/conditional-probability-cp3.html
- An interactive tool that shows the significance of conditional probabilities and independent events http://www.cut-the-knot.org/Curriculum/Probability/ConditionalProbability.shtml
- Basics in understanding probability https://www.khanacademy.org/math/statistics-probability/probability-library

ALGEBRA II: WHAT HIGH SCHOOLERS ARE LEARNING



Students taking Algebra II will spend the most time working on the following topics. By the end of the year, they should understand the topics well to provide a foundation for success in additional coursework and as preparation for both college and career.

- Creating equations and systems of equations to solve problems in context. For example, at the circus, tickets are half price for kids younger than age 12. Our school bought tickets for 14 kids younger than age 12 and for 20 kids aged 12 and older. The total cost of the tickets was \$108. How much is a circus ticket for a kid younger than age 12? Show the algebra steps you took to solve the problem. Present the steps clearly and logically so that your classmates can follow along with your solution.
- Creating, analyzing, and applying functions. This work involves using equations, graphs, and tables that represent functions in different ways. The emphasis is on polynomial, exponential, and trigonometric functions. For example, Susanna heard some exciting news about a celebrity. Within a day she told 4 friends who hadn't heard the news yet. By the next day, each of those friends told 4 other people who also hadn't yet heard the news. By the next day, each of those people told 4 more, and so on. Assume the news continues to spread in this way. Let N be the function that assigns to d the number of people who hear the news on the dth day. Write an expression for N(d). On which day will at least 100,000 people hear the rumor for the first time? Show the algebra steps you took to solve the problem. Present the steps clearly and logically so that your classmates can follow along with your solution.



LGEBRA II: WHAT HIGH SCHOOLERS ARE LEARNING (continued)

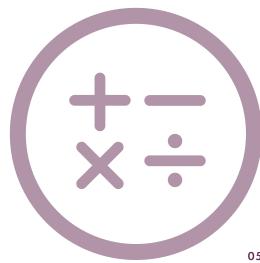


- Interpreting and identifying ways to rewrite expressions, such as when simplifying rational expressions or when rewriting expressions involving radicals and rational exponents. For example, rewriting $\frac{x}{(x^2+3x)}$ as $\frac{1}{(x+3)}$; rewriting $7^{1.5}$ in any of the equivalent forms $7^{3/2}$, $\sqrt{343}$, $(\sqrt{7})^3$, or $7\sqrt{7}$.
- Relating zeros of polynomials to their factors. For example, to solve the equation $9x = x^3$, one can first rewrite the equation as $9x - x^3 = 0$. Next, one can factor the left-hand side to produce the equation x(3 + x)(3-x)=0. This form of the equation implies there are three solutions, x=0, x=3, and x=-3. The equation $9x - x^3 = 0$ can also be analyzed using a graph of the function $y = 9x - x^3$. (A graph of this relationship can be seen at https://www.desmos.com/calculator/x4nalzravs.)
- Using the mean and standard deviation of a data set. Understanding and evaluating random processes underlying statistical experiments, and drawing conclusions based on graphical and numerical summaries.

ALGEBRA II: TOOLS AND RESOURCES TO HELP



- This applet helps you explore polynomial functions of degrees up to 5 https://www.analyzemath.com/polynomial2/polynomial2.htm
- Khan Academy can help you construct and analyze exponential functions https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:exp-model/ x2ec2f6f830c9fb89:construct-exp/e/construct-exponential-models-according-to-rate-of-change
- This trigonometric functions game provides practice with recognizing the graphs https://www.purposegames.com/game/trig-functions-quiz
- Use this practice link to review simplifying rational expressions https://www.mesacc.edu/~scotz47781/mat120/notes/rational/simplifying/simplifying.html
- Videos and practice problems for evaluating exponents and radicals https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:exp/ x2ec2f6f830c9fb89:eval-exp-rad/v/fractional-exponents-with-numerators-other-than-1
- Use this site to review factoring to find zeros of polynomial functions https://courses.lumenlearning.com/ivytech-collegealgebra/chapter/use-factoring-to-%EF%AC%81nd-zeros-of-polynomial-functions/
- Watch this video on the measures of spread to help you describe and compare data sets https://vimeo.com/439576447





INTEGRATED COURSE SEQUENCE

INTEGRATED MATH I: WHAT HIGH SCHOOLERS ARE LEARNING



Students taking Math I will spend the most time working on the following topics. By the end of the year, they should understand the topics well to provide a foundation for success in additional coursework and as preparation for both college and career.

- Creating equations and systems of equations to solve problems in context. For example, on June 21st, the day was four and a half hours longer than the previous night. How long was the previous night? Present the steps clearly and logically so that your classmates can follow along with your solution.
- Creating, analyzing, and applying functions. This work involves using equations, graphs, and tables that represent functions in different ways. The emphasis is on **linear**, **quadratic**, and **exponential functions**. For example, a mathematical model for farming predicts how much grain, y, will be harvested if a given amount of fertilizer, x, is applied. The model for the relationship is $y = 676 + 3.4x (0.01754)x^2$, where x and y are measured in kilograms per acre or kg/acre. Is more fertilizer always better in this model? Estimate the best amount of fertilizer to use. (A graph of the relationship can be seen at https://www.desmos.com/calculator/16ua1no8td.)
- Reasoning quantitatively and using units to solve problems. For example, a nurse needs to know how much of a medicine to give a child who weighs 10 kg. The child should receive 25 mg of medicine for each kg of body weight. The medicine is packaged in bottles of liquid with 750 mg of medicine per 15 ml of liquid. How many ml of liquid should the child receive?
- Interpreting and comparing **shape**, **center** and **spread** of realistic data sets to summarize, represent, and interpret **categorical** and **quantitative** data.
- Understanding congruence and similarity in terms of plane transformation. Using congruence and similarity concepts to prove theorems, especially theorems about transversals, triangles, and quadrilaterals.

INTEGRATED MATH I: TOOLS AND RESOURCES TO HELP



- Here is a readiness check on how well your student is applying linear functions through a game https://www.mathgames.com/skill/8.69-algebra-linear-function
- Videos on how to solve **systems of equations** using various methods http://www.mathtv.com/topic/algebra/systems-of-equations
- Practice activities to write linear functions based on a graph https://www.desmos.com/calculator/d0kidwd2uw
- This online game provides practice with recognizing the graphs of quadratic functions by matching
 a given quadratic function with the graph that represents it
 http://www.purposegames.com/game/quadratic-functions-quiz
- Construct and analyze exponential functions
 https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:exp-model/x2ec2f6f830c9fb89:construct-exp/e/construct-exponential-models-according-to-rate-of-change
- Activities, videos, and tutorials using units to reason quantitatively
 https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:working-units/x2f8bb11595b61c86:word-problems-multiple-units/e/units



INTEGRATED MATH I: TOOLS AND RESOURCES TO HELP (continued)



- Comparing and understanding data sets https://www.khanacademy.org/math/statistics-probability
- Investigate congruence by manipulating the parts (sides and angles) of a triangle https://www.nctm.org/Classroom-Resources/Illuminations/Interactives/Congruence-Theorems/
- Here is a game to engage with transformations or a combination of transformations https://nrich.maths.org/transformationgame

INTEGRATED MATH II: WHAT HIGH SCHOOLERS ARE LEARNING



Students taking Math II will spend the most time working on the following topics. By the end of the year, they should understand the topics well to provide a foundation for success in additional coursework and as preparation for both college and career.

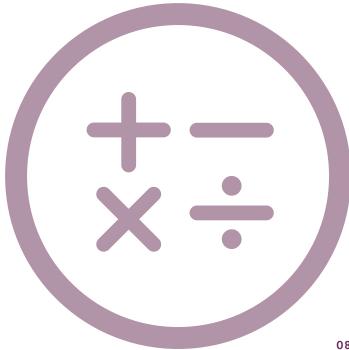
\bigcirc	Creating equations and systems of equations to solve problems in context. For example, at the circus, tickets are half price for kids younger than age 12. Our school bought tickets for 14 kids younger than age 12 and for 20 kids aged 12 and older. The total cost of the tickets was \$108. How much is a circus ticket for a kid younger than age 12? Show the algebra steps you took to solve the problem. Present the steps clearly and logically so that your classmates can follow along with your solution.
\bigcirc	Interpreting and identifying ways to rewrite expressions, such as the difference of squares, factoring out a common monomial , or regrouping while writing expressions in equivalent forms to solve problems. For example, rewriting $2x^23x^3y^2$ as $6x^5y^2$ or rewriting $(3t^2+t)+(2+t^2)$ as $4t^2+t+2$.
\bigcirc	Interpreting and identifying ways to rewrite expressions, such as when rewriting expressions involving radicals and rational exponents . For example, rewriting $7^{1.5}$ in any of the equivalent forms $7^{3/2}$, $\sqrt{343}$, $(\sqrt{7})^3$, or $7\sqrt{7}$.
0	Relating zeros of polynomials to their factors. For example, to solve the equation $9x = x^3$, one can first rewrite the equation as $9x - x^3 = 0$. Next, one can factor the left-hand side to produce the equation $x(3 + x)(3 - x) = 0$. This form of the equation implies there are three solutions, $x = 0$, $x = 3$, and $x = -3$. The equation $9x - x^3 = 0$ can also be analyzed using a graph of the function $y = 9x - x^3$. (A graph of this relationship can be seen at https://www.desmos.com/calculator/x4nalzravs.)
\bigcirc	Understanding congruence and similarity in terms of plane transformation. Using congruence and similarity concepts to prove theorems, especially theorems about transversals, triangles, and quadrilaterals.
\bigcirc	Using area and volume formulas to solve real-world and mathematical problems of geometric measurement. For example, using volume formulas for cylinders, pyramids, cones, or spheres to solve problems, and applying geometric concepts to model situations.
\bigcirc	Defining trigonometric ratios and solving real-world problems involving right triangles.
\bigcirc	Working with geometric shapes in the coordinate plane, including by deriving the equation of a circle .
\bigcirc	Understanding independent and conditional probability , and using them to interpret data and compute probabilities of compound events .



NTEGRATED MATH II: TOOLS AND RESOURCES TO HELP



- Play this game to practice your skills in factoring various types of quadratic expressions https://www.mangahigh.com/en/games/wrecksfactor
- Videos that demonstrate how to rewrite radical expressions with rational exponents http://www.artofproblemsolving.com/Videos/index.php?type=introalgebra#chapter11
- Review factoring to find zeros of polynomial functions https://courses.lumenlearning.com/ivytech-collegealgebra/chapter/use-factoring-to-%EF%AC%81nd-zeros-of-polynomial-functions/
- This website reviews the relationship between angles, parallel lines, and transversals to help you lay the foundation for proofs https://tutors.com/math-tutors/geometry-help/proving-lines-are-parallel
- Try out this applet to prove triangle congruence https://www.geogebra.org/m/d9HrmyAp#material/wYtNhjKr
- Concepts of volume are introduced through a unique and memorable song https://www.flocabulary.com/unit/volume-cone-cylinder-sphere/
- Explore the trigonometric ratios to find an unknown side or angle in a right triangle http://www.learnalberta.ca/content/mejhm/index.html?l=0&ID1=AB.MATH.JR.SHAP&ID2=AB. MATH.JR.SHAP.TRIG&lesson=html/object_interactives/trigonometry/use_it.html
- Videos that show you how to derive the equation of a circle in the coordinate plane https://www.ck12.org/geometry/circles-in-the-coordinate-plane/lesson/circles-in-the-coordinateplane-geom/
- This series of videos takes you through multiple lessons on conditional probability https://www.onlinemathlearning.com/conditional-probability-cp3.html
- An interactive tool that shows the significance of conditional probabilities and independent events http://www.cut-the-knot.org/Curriculum/Probability/ConditionalProbability.shtml
- Basics in understanding probability https://www.khanacademy.org/math/statistics-probability/probability-library





INTEGRATED MATH III: WHAT HIGH SCHOOLERS ARE LEARNING



Students taking Math III will spend the most time working on the following topics. By the end of the year, they should understand the topics well to provide a foundation for success in additional coursework and as preparation for both college and career.

- Creating equations and systems of equations to solve problems in context. For example, at the circus, tickets are half price for kids younger than age 12. Our school bought tickets for 14 kids younger than age 12 and for 20 kids aged 12 and older. The total cost of the tickets was \$108. How much is a circus ticket for a kid younger than age 12? Show the algebra steps you took to solve the problem. Present the steps clearly and logically so that your classmates can follow along with your solution.
- Interpreting and identifying ways to rewrite expressions, such as the difference of squares, factoring out a common monomial, or regrouping while writing expressions in equivalent forms to solve problems. For example, rewriting $2x^23x^3y^2$ as $6x^5y^2$ or rewriting $(3t^2+t)+(2+t^2)$ as $4t^2+t+2$.
- Interpreting and identifying ways to rewrite expressions, such as when simplifying **rational expressions**. For example, rewriting $\frac{x}{(x^2+3x)}$ as $\frac{1}{(x+3)}$.
- Creating, analyzing, and applying functions. This work involves using equations, graphs, and tables that represent functions in different ways. The emphasis is on **polynomial**, **exponential**, and **trigonometric functions**. For example, Susanna heard some exciting news about a celebrity. Within a day she told 4 friends who hadn't heard the news yet. By the next day, each of those friends told 4 other people who also hadn't yet heard the news. By the next day, each of those people told 4 more, and so on. Assume the news continues to spread in this way. Let N be the function that assigns to d the number of people who hear the news on the dth day. Write an expression for N(d). On which day will at least 100,000 people hear the rumor for the first time? Show the algebra steps you took to solve the problem. Present the steps clearly and logically so that your classmates can follow along with your solution.
- Working with geometric shapes in the coordinate plane, including by deriving the equation of a circle.
- Using the **mean** and **standard deviation** of a data set. Understanding and evaluating random processes underlying statistical experiments, and drawing conclusions based on graphical and numerical summaries.

INTEGRATED MATH III: TOOLS AND RESOURCES TO HELP



- Play this game to practice your skills in factoring various types of quadratic expressions https://www.mangahigh.com/en/games/wrecksfactor
- Use this practice link to review simplifying rational expressions https://www.mesacc.edu/~scotz47781/mat120/notes/rational/simplifying/simplifying.html
- Explore polynomial functions of degrees up to 5 https://www.analyzemath.com/polynomial2/polynomial2.htm
- Khan Academy can help you construct and analyze exponential functions
 https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:exp-model/x2ec2f6f830c9fb89:construct-exp/e/construct-exponential-models-according-to-rate-of-change
- Videos that show you how to derive the equation of a circle in the coordinate plane
 https://www.ck12.org/geometry/circles-in-the-coordinate-plane/lesson/circles-in-the-coordinate-plane-geom/
- Watch this video on the measures of spread to help you describe and compare data sets https://vimeo.com/439576447



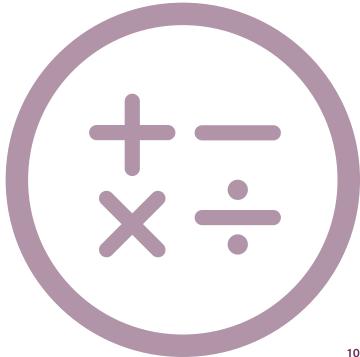


TALKING ABOUT MATH WITH YOUR HIGH SCHOOLER:

High school is an opportunity for students to take more ownership of their learning. The content students learn will become increasingly sophisticated. Acknowledging your teen's interests throughout this time can help to engage them in the study of mathematics.

Below are a few tips on how parents can encourage teens to engage with high school mathematics:

- Talk about the math your student is learning. What makes them feel successful? What new concepts are they learning? Where do they feel they need an additional math challenge or support?
- Find resources together that they feel are relevant and helpful to their course of study. Suggest that they talk to their teachers about the resources, extensions and practice activities they find.
- Ask students to name topics of study that are directly relevant to their world. For example,
 - In Algebra 1, students can calculate a trajectory for shooting a basketball into a hoop.
 - In Geometry, students can determine how much area is needed to install a pool, calculate the amount of water needed to fill the pool and estimate the time it will take to fill the pool.
 - In Algebra 2, students can examine how exponential functions can model real world features, such as trends in energy use.
 - In Math I, students can use exponential equations to understand and represent repayment models on future school loans.
 - In Math II, students can use probability to plan around how likely it is that they will need to file an insurance claim based on the percentage of drivers that hit a deer within the last year.
 - In Math III, students can use trigonometry and technology to graph sine and cosine functions that model sound waves in order to adjust volume and pitch.
- Encourage students to think about careers they might like to have when they are an adult. Help them learn about how math is a part of these jobs





EDUCATION WORDS



Sometimes, you'll hear educators use a word that has a specific meaning in schools. Understanding those terms will help you speak the same language!

Categorical data

Data that can be separated into different groups, consisting of labels or non-numeric entries. This can include rankings (for example, finishing places in a race), classifications (for example, brands of cereal), and binary outcomes (for example, coin flips).

Center

In statistics, the center is the median and/or value of a data set. In geometry, the center is a point that is the same distance from all locations of the perimeter on the figure.

Circle

A circle is a closed plane curve consisting of all points at an equal distance from the center.

Compound events

The likelihood of two or more independent events happening at the same time.

Conditional probability

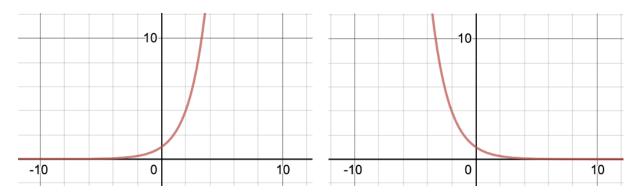
The likelihood of one event occurring with some relationship to one or more other events. For example, the probability (P) that event B occurs because event A has occurred, written as P(B|A).

Congruence

Two figures or **shapes** in the plane are congruent if they are identical in **shape** and size, or identical in **shape** and size after one or the other is reflected.

Exponential function

A nonlinear function of the form $y = ab^x$, where $a \ne 0$, $b \ne 1$, and b > 0. The diagram shows graphs of two different exponential functions.



Independent probability

Two events are independent if the probability of one event is unrelated to the probability of the other event.

Linear function

Any function of the form f(x) = ax + b that makes a straight line when it is graphed.



EDUCATION WORDS (continued)



Mean

A statistically "central" value of a set of numbers, calculated by adding all the numbers and dividing by how many numbers there are; sometimes called an average.

Monomial

An algebraic expression of one of the following types: a number (such as 47); a variable, possibly with whole-number exponents (such as z or x^3); a product of several variables, possibly with whole-number exponents (such as xyz or p^2q); and/or a product of a number and one or more variables, possibly with whole-number exponents (such as $-3a^2bc$).

Polynomial function

A function, such as a quadratic, a cubic, a quartic, and so on, involving only non-negative integer powers of x. When a polynomial function is completely factored, each of the factors helps identify zeros of the function.

Quadratic function

A function in one variable with the form $y = ax^2 + bx + c$, where a, b, and c are real numbers, and where $a \ne 0$ or, in the vertex form $f(x) = a(x - h)^2 + k$, where $a \ne 0$. The graph of a quadratic function is a "U shape" called a parabola.

Quadrilateral

A closed, two-dimensional shape with four straight sides.

Quantitative data

Consists of numbers that represent counts or measurements, for example, height, weight, or age.

Quantitatively/Quantitative reasoning

Knowing and flexibly using different properties of operations to create a coherent representation by considering units and attending to the meaning of quantities.

Radicals

Any expression containing a radical symbol, for example $\sqrt{2}$, $\sqrt[4]{16x^8}$.

Rational exponents

Expressions with exponents that are rational numbers (as opposed to integers, which are whole and negative numbers).

Rational expressions

A ratio of two polynomials; a fraction in which the numerator and/or the denominator are polynomials.

Shape

In statistics, the ways to describe shape are by the number of peaks, the possession of symmetry, the tendency to skew, or the uniformity in the data set.

Similarity

Two **shapes** are similar if resizing one **shape** would make it congruent to the other **shape**; when **shapes** have equal corresponding angles and proportional corresponding sides. If two **shapes** are similar, one **shape** can become the other if the first can be resized onto the other.



EDUCATION WORDS (continued)



Spread

In a data set, the spread is the measure of how far the numbers are away from the mean or median. The further the data values are from the mean or median, the greater the spread of the data.

Standard deviation

A measure of how spread out numbers in the data set are from its mean (see Spread).

System of equations

A set of two or more linear equations or inequalities with the same variables that need to be solved together. For example:

Equation 1: y = x - 1Equation 2: y = 3x + 7

Transformation

A process that manipulates a polygon or other two-dimensional object on a plane or coordinate system. Mathematical transformations describe how two-dimensional figures move around a plane or coordinate system. Kinds of transformations include a translation (slide), reflection (flip), rotation (turn), dilation (resize), and glide (combination).

Transversals

Lines that cross at least two lines.

Trigonometric function

A function (such as the sine, cosine, tangent, cotangent, secant, or cosecant) of an arc or angle expressed in terms of the ratios of pairs of sides of a right-angled triangle.

Trigonometric ratios

These ratios, also known as trigonometric identities, relate the lengths of the sides of a right-angled triangle to its interior angles.

Volume

The amount of 3-dimensional space enclosed by a boundary or the amount required to fill an object.





TIPS FOR TALKING WITH TEACHERS

All students, particularly high schoolers who are engaged in more complex and sophisticated areas of study, should feel empowered to engage in conversation with their teachers about their progress and the content they are learning. Throughout the school year, students can use the following questions to ask teachers about their performance and self-assess:

- How can I apply what I already know to the content in this course?
- What are the expectations for success in this class? How do these criteria balance between effort and achievement?
- What do you see as areas of strength for me as a mathematician?
- Are there specific resources that I should be aware of to support my learning this year?

Families can also inquire about the content students will learn in class and how to provide support:

- What new content will be learned throughout the year? Which are the most important topics?
- Does my high schooler do better on problems involving more concrete tasks involving numbers or more abstract mathematical concepts?
- Are there topics that students are currently studying or will be learning about that connect to math they've already studied?
- Are there concepts that my teen may have missed out on from earlier this year that they need to go back and review in order to succeed on the material for the rest of this year?









CONNECTING CLASSROOMS TO CAREERS



Helping high schoolers see how what they are learning in school connects to their future is one of the best ways that families can support their kids. In addition to seeking out resources at school and in your community (community colleges are a great place to look), here are a few more ways to get started:

- Help your high schooler think about what jobs they might like to have, and then learn more about the education and training they need for a career in that field. https://www.careerzone.ny.gov/views/careerzone/stem/index.jsf
- Does your high schooler like building and fixing things? Helping people? Learn more about how interests could lead to a career. https://www.bls.gov/k12/students/careers/career-exploration.htm
- Have your high schooler visit/"shadow" someone who works in a career in which they are interested. Here are some virtual site visits to get started. https://www.nebraskacareerclusters.com/
- Has your high schooler expressed interest in a career in the military? Explore military careers here. https://www.asvabprogram.com/
- Find a pathway to success: A guide to help students learn how to translate their interests into one of 16 career clusters. https://ed.sc.gov/instruction/career-and-technical-education/career-guidance/career-clusterquides/
- Learn the importance of math for careers and jobs: What teens need to know and how parents can help. https://www.niu.edu/mathmatters/careers-jobs/index.shtml
- Are there colleges your high schooler has expressed interest in attending? Together, check out their admissions requirements, including their course-taking requirements. Make sure your student is prepared for and taking the classes they need not just to graduate from high school but to be eligible for college admission.





FAMILY GUIDES: EDUCATION WORDS GRADES K – 5

Sometimes, you'll hear educators use a word that has a specific meaning in schools.

Understanding those terms will help you speak the same language!

Antonyms

Antonyms are words that mean the opposite. "Big" and "little" are antonyms.

Automaticity

Automaticity is the ability to do things without thinking about each step in the process. It is usually the result of learning, repetition, and practice.

Coordinate plane

A coordinate plane (https://www.splashlearn.com/math-vocabulary/geometry/coordinate-plane) is a two-dimensional (https://www.splashlearn.com/math-vocabulary/geometry/two-dimensional) plane formed by the intersection of a vertical number line called y-axis and a horizontal number line called x-axis. These are perpendicular lines that intersect each other at zero, and this point is called the origin (https://www.splashlearn.com/math vocabulary/geometry/origin).

Decodable

Decodable texts are those that are connected to sound and spelling patterns that have already been taught, so most words the students read will be ones they can decode based on what they have been taught. (For example, students who have learned the sounds /a/, /c/, and /t/ can decode "cat.")

Figurative language

Figurative language uses figures of speech to be more interesting, effective, and impactful. ("My dog's coat is as black as coal." "He was a lion when he fought for what was right.")

Fluency

The ability to read with speed, accuracy, and proper expression that shows comprehension of what is being read.

Idiom

A group of words established by usage as having a meaning not deducible from those of the individual words (for example, "raining cats and dogs," meaning "to rain heavily;" "piece of cake," meaning "something that is easy to do").

Inventive spelling

Spelling a word using spelling attempts based on letters that the child knows to represent each sound. Accurate spelling is less important than ensuring that your child is using what they have been taught, and building up their ability to sound out words when writing.



Number line

A straight line with numbers placed at equal segments along its length.



Numerator and denominator

The numerator is the top number in a fraction. It shows how many parts we have. The denominator is the bottom number in a fraction. It shows how many parts the item is divided into.



Phonemic awareness

The ability to recognize that spoken words are made up of individual sounds (or phonemes), and to identify, produce, and play with those individual sounds (a critical part of **phonological awareness**).

Phonological awareness

The ability to recognize the sounds of language, including rhyme, syllables, and the sounds in words.

Place value

Every digit in a number has a place value based on its position in the number. For example, in the number 548, the digit 5 is in the hundreds place, and its place value is 500. The digit 4 is in the tens place, and its place value is 40. The digit 8 is in the ones place, and its place value is 8.

Prefix

A prefix is a group of letters added to the beginning of a word that change its meaning. Adding "un" to the word "clean" makes the word mean "not clean." Other common prefixes are "re," "dis," "over," "mis," and "out."

Reading level

Teachers often determine the grade level at which a student is reading. But sometimes, children are then limited to reading texts at that level (typically a letter or number). This practice is one to be wary of, particularly if children are limited to reading only texts that are below the grade level goals, or texts that aren't **decodable** and don't match their phonics instruction.

Rote counting

Counting numbers in order (1, 2, 3, 4, 5...).



Sight words

Sight words are any words that a child can read automatically.

Suffix

A suffix is a group of letters added to the end of a word. Suffixes can change the meaning of a word. Adding "less" to "end" changes its meaning to "without end." A suffix can also change how the word is used. The noun "child" becomes an adjective "childish" when you add the suffix "ish."

Synonyms

Synonyms are words that mean the same thing. "Big" and "enormous" are synonyms.

Text sets

Text sets are carefully grouped sets of texts and media resources focused on a specific topic designed to help all learners build background knowledge and vocabulary through a lot of reading on science, social studies, and other high-interest topics.

Thesis statement

A thesis statement is one or two sentences that summarize the paper's main point, main idea, or main message.

Unlike denominators

Unlike denominators are two fractions (https://www.splashlearn.com/math-vocabulary/fractions/fraction) with non-identical denominators (https://www.splashlearn.com/math-vocabulary/fractions/denominator). For example, 3 and 46 have unlike denominators.

Volume

Volume is the 3-dimensional (https://www.splashlearn.com/math-vocabulary/geometry/3-dimensional) space enclosed by a boundary or occupied by an object. Finding the volume of an object can help us to determine the amount required to fill that object, like the amount of water needed to fill a bottle, an aquarium, or a water tank. The volume of an object is measured in cubic units (https://www.splashlearn.com/math-vocabulary/geometry/cubic-unit) such as cubic centimeters, cubic inch, cubic foot, cubic meter, etc.