

# Bar Graphs

Who was the tallest person in your class last year? You probably remember without knowing exactly how tall that person was because you compared that person with all the others in the class. In your mind, you probably can still picture the one who was taller than the others. You probably remember the shortest person too.

It is often easy to remember the tallest or smallest, the longest or shortest, and the fastest or slowest in a wide **range** of items. The extremes in the range stand out in your mind.

**Bar graphs** help us to compare data and remember facts. You probably have already compared the bars on the graph on this page. No doubt, you remember which bar is the longest without looking at the graph.

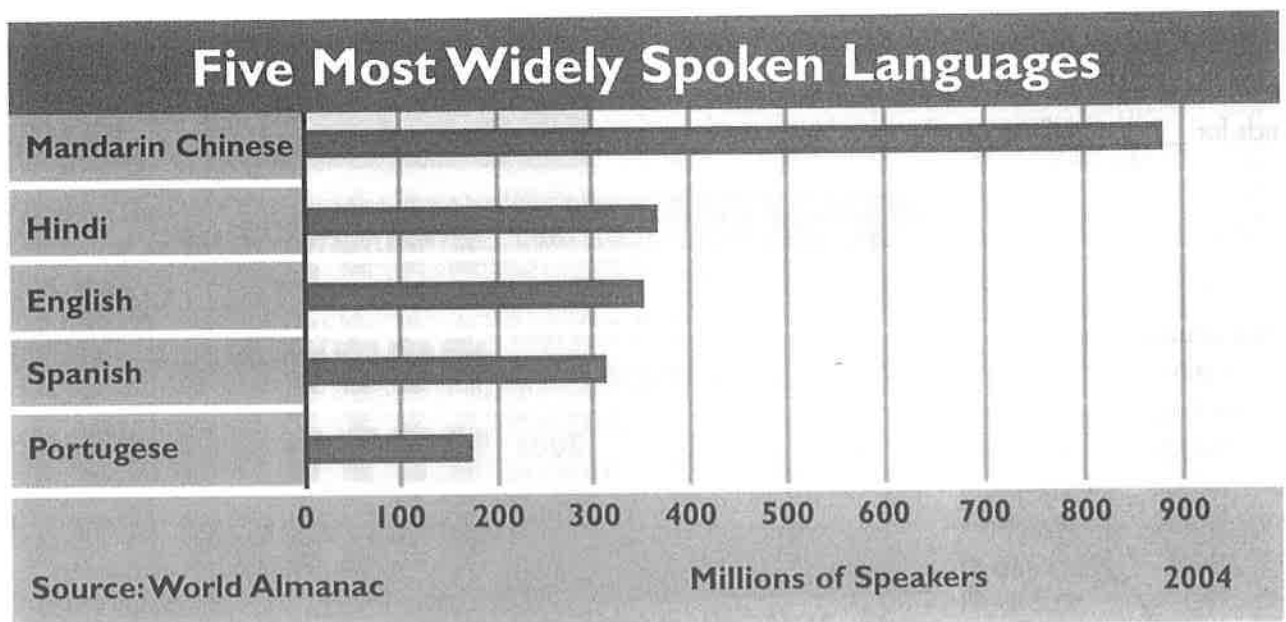
\* Draw a circle around the longest bar on the graph.

In a bar graph, each bar is laid out along a scale of equal units. The units might be inches, parts of inches, or any equal lengths that fit the graph area. The longest bar has the greatest value, and the shortest bar has the smallest value on the graph.



## ? QUESTIONS TO TALK OVER

- \* What could you say about the number of people who speak English? How does English compare with the other languages on the graph?
- \* What could you say about English compared with languages not shown on the graph, such as Japanese? Give reasons for your answer.



On this graph, the bars are **horizontal**. Horizontal bars run across a graph from left to right just as the stripes run across our flag.

• How many horizontal bars are shown on the graph? \_\_\_\_\_

• How many horizontal bars are shown on the graph on page 14? \_\_\_\_\_

Just below the bottom bar, you see the **horizontal axis**. This numbered line helps you measure the value of the bars.

• On the graph here, the numerals run by 10's from 100 to \_\_\_\_\_.

• On the graph on page 14, the numerals run by 100's from \_\_\_\_\_ to \_\_\_\_\_.

The **vertical axis** meets the horizontal axis at the zero point. Vertical lines run up and down like elevators.

• What are the earliest and latest dates on the vertical axis above? \_\_\_\_\_ and \_\_\_\_\_.

• What is the third name on the vertical axis on page 14? \_\_\_\_\_

Just below the horizontal axis, you see a **horizontal axis title**. The axis title tells you what the numerals stand for.

• What is the horizontal axis title for the graph above? \_\_\_\_\_

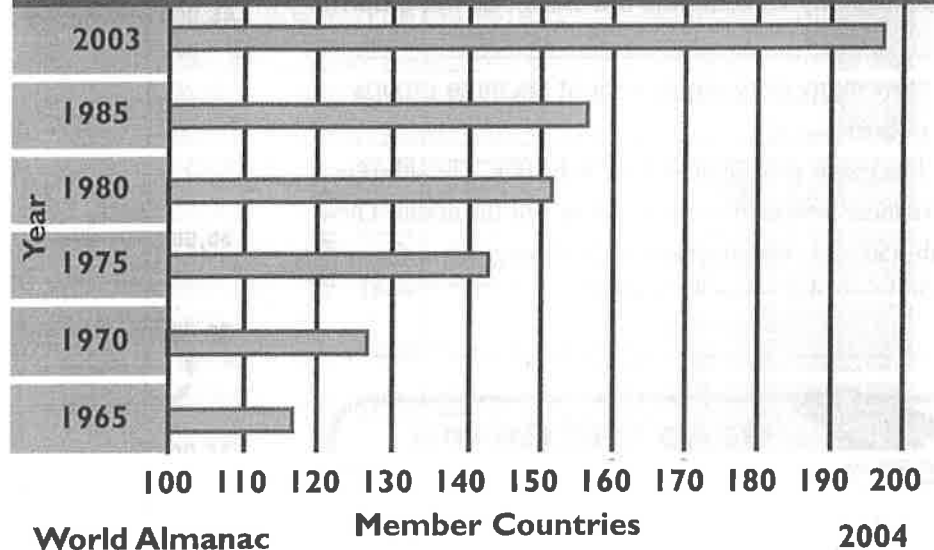
• What is the horizontal axis title for the graph on page 14? \_\_\_\_\_

You see a vertical axis title along the left side of the graph above.

• What is the vertical axis title? \_\_\_\_\_

• If you need a vertical axis title for the graph on page 14, what title would you choose for the five words? \_\_\_\_\_

## Growth in United Nations Membership



Vertical grid lines run up and down the surface of a horizontal bar graph. The grid lines help you find the value of each bar.

To find the value of a bar, look at the right end of the bar. If the bar ends on a grid line, just look below at the value given for that grid line. If the bar ends between grid lines, trace an imaginary line down from the end of the bar to the horizontal axis. Use the numerals on each side of your imaginary line to estimate the value of the bar.

• What is the value of the bar for 1965 on the graph above? \_\_\_\_\_

• According to the graph on page 14, about how many people speak Mandarin Chinese? \_\_\_\_\_

# Changing Values

The graph on this page is a **vertical bar graph**. The bars run from the bottom toward the top, instead of from left to right.

- How many vertical bars are shown on the graph?  
\_\_\_\_\_
- How many bars are in each of the three groups of bars?  
\_\_\_\_\_

The graph also includes three **subtitles**. The subtitles give more information about the title of the graph. The subtitles also serve as titles for the three groups of bars.

- What is the second subtitle?  
\_\_\_\_\_

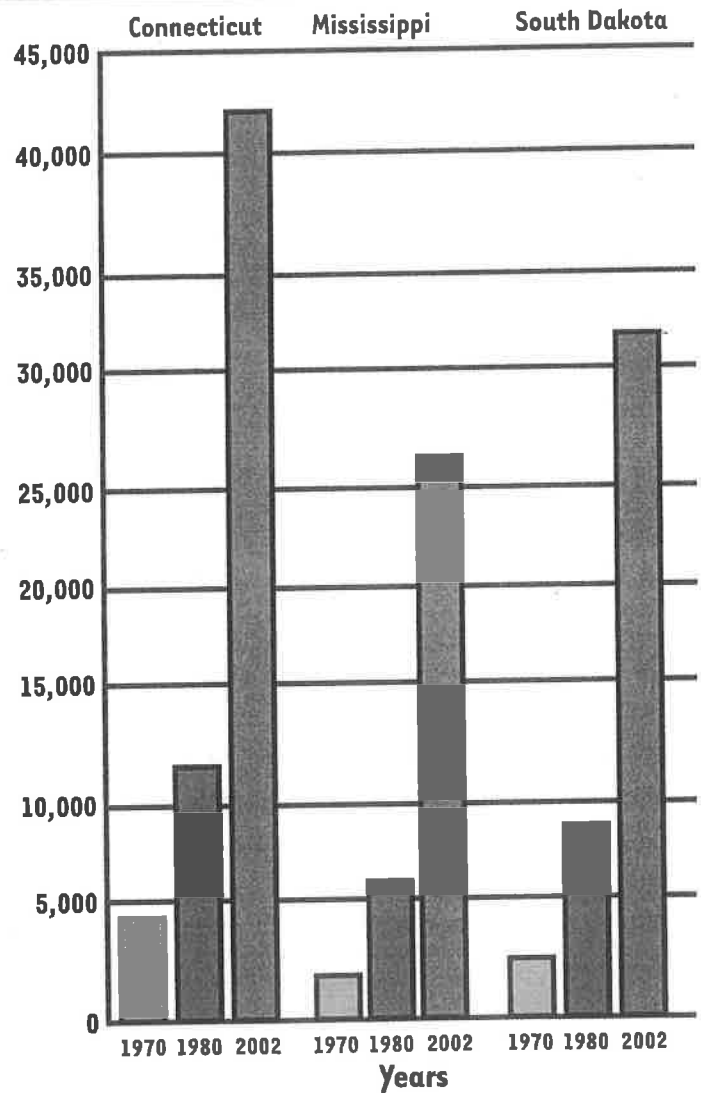


## READ THE GRAPH

Complete each sentence below. Use data from the graph to find your answers.

- 1 The lowest income per person for all three years was in the state of \_\_\_\_\_.
- 2 The lowest average income for the state of South Dakota was in the year \_\_\_\_\_.
- 3 The highest average income for all three states was in the year \_\_\_\_\_.
- 4 The state with an average income of about \$3,100 in 1970 was \_\_\_\_\_.
- 5 The highest average income for all three years was in the state of \_\_\_\_\_.
- 6 In 1980, the average income in Connecticut was about \$5,000 more than the average income in the state of \_\_\_\_\_.
- 7 The greatest increase in average income between the years 1940 and 2002 was in the state of \_\_\_\_\_.
- 8 The dollar value of the vertical axis increases in groups of \_\_\_\_\_.

## Average Income Per Person in Three States (in Dollars)



Source: U.S. Bureau of the Census 2002



## QUESTIONS TO TALK OVER

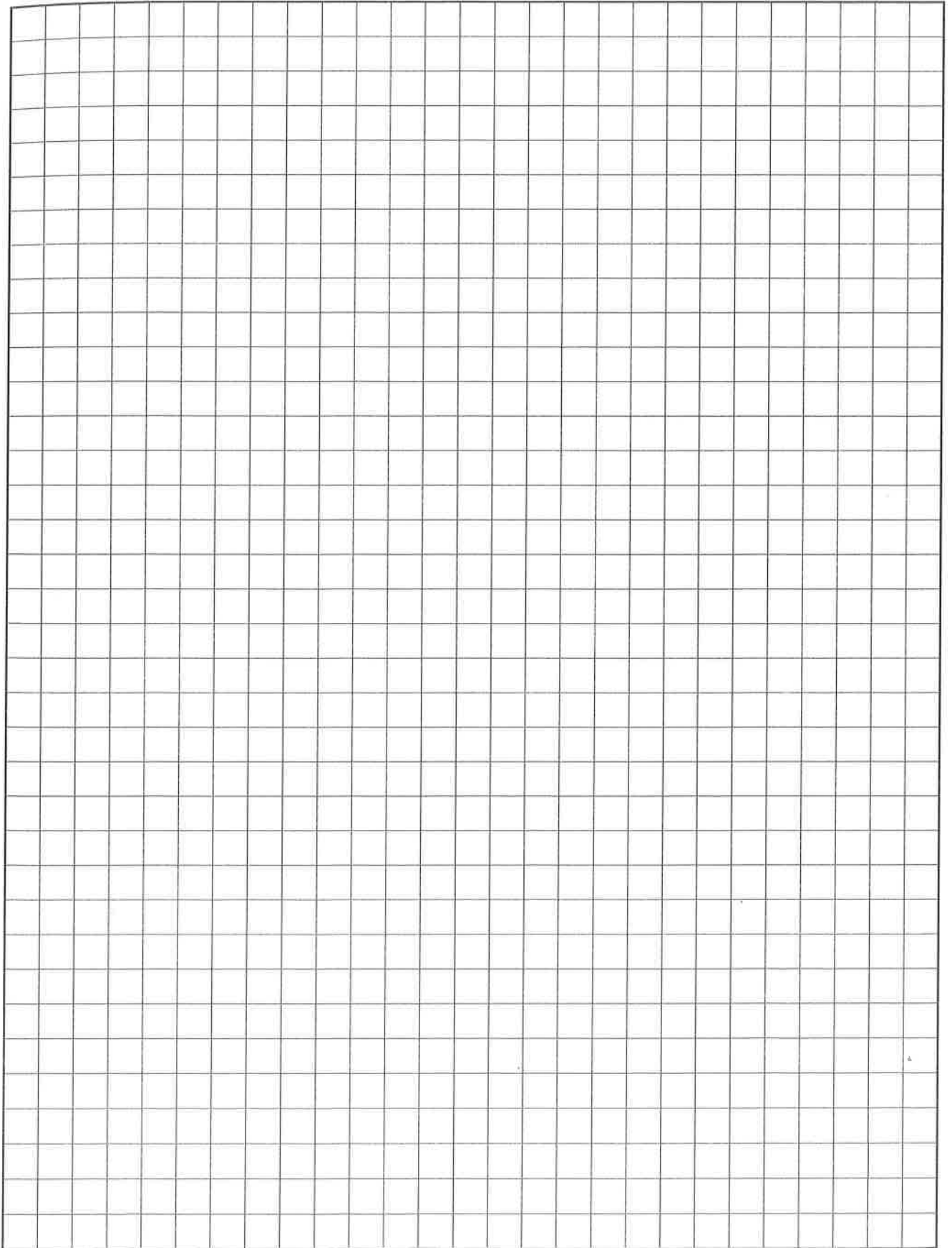
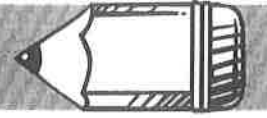
- How do the grid lines on a vertical bar graph differ from those on a horizontal graph?
- What do the words *Average Income Per Person* mean?

Name

Date

Time

$\frac{1}{4}$ -inch Grid Paper

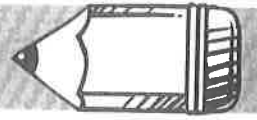


Name \_\_\_\_\_

Date \_\_\_\_\_

Time \_\_\_\_\_

# Reading a Graph

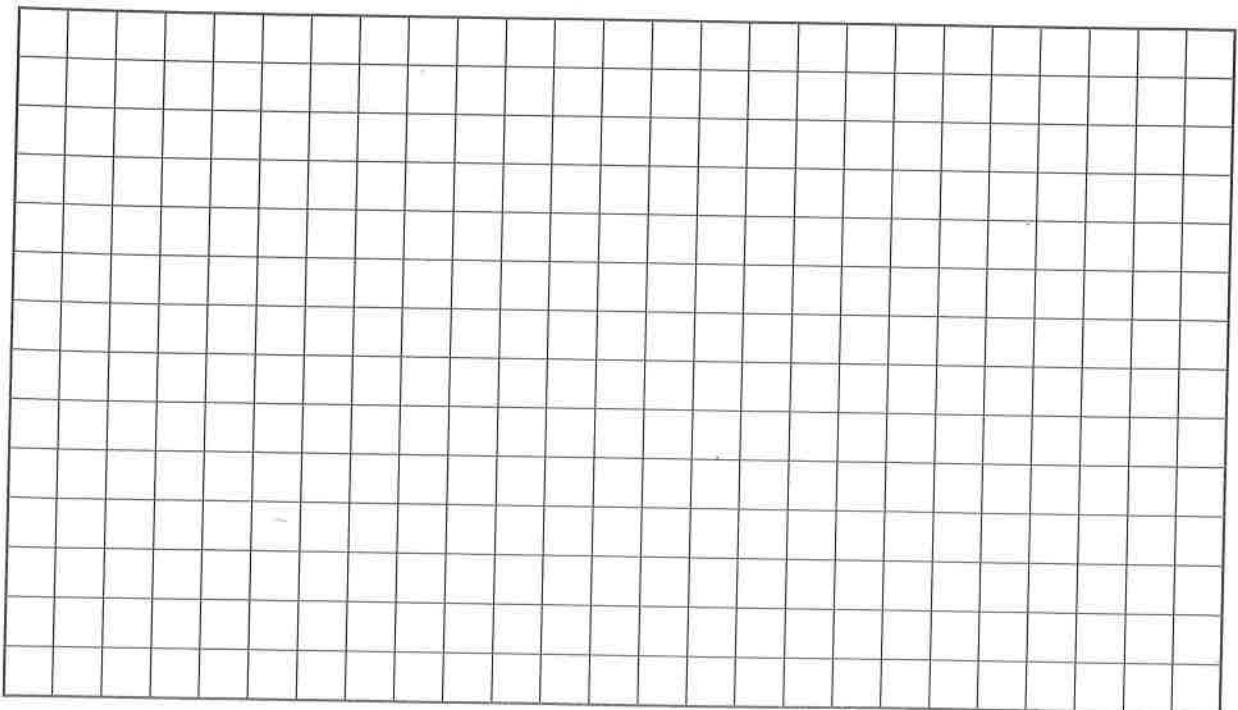


Fill out this form for each graph you collect.

1. Title of graph \_\_\_\_\_
2. Source \_\_\_\_\_
3. Purpose of graph \_\_\_\_\_
4. Is the graph attractive? \_\_\_\_\_ Is it easy to read? \_\_\_\_\_
5. Does the graph appear to be fair and accurate? \_\_\_\_\_
6. What revision(s) would improve the graph? \_\_\_\_\_  
\_\_\_\_\_
7. Can you draw a conclusion from or make a prediction based on this graph? \_\_\_\_\_  
If so, what? \_\_\_\_\_  
\_\_\_\_\_
8. What is one question that a classmate could answer by reading the graph?  
\_\_\_\_\_

## Challenge

9. A particular type of graph was selected to display the data. Sketch a different type of graph that could display the same data.



# Going A P E For Reading

<b><u>Anticipate the Text</u></b>	[Highlight <u>assertions</u> in green]
<b><u>Preview</u></b> – Titles / Captions / Pictures / Bold Letters/ Charts Look for Topic Sentences & Thesis Statement <u>Assertions</u>	L1
<b><u>Predict</u></b> – <u>Argumentative?</u> / <u>Informational?</u> / <u>Narrative?</u> / <u>Literary?</u> What do you think may happen? / What is it about?	L2
<b><u>Process the Information</u></b>	[Highlight <u>proof</u> in yellow]
<b><u>Question</u></b> – Who? / What? / Where? / When / Why? / How? Purpose? / Point of View? / Why does it matter?	L1 L2
<b><u>Vocabulary</u></b> – Learn Content-Linked Words / Symbols / Allusions	L1 L2
<b><u>Structure</u></b> – Cause and Effect / Problem–Solution / Chronological / Enumeration / Compare and Contrast / If–Then / Least to Most Important Points / Transitions	L1 L2
<b><u>Cornell Notes</u></b> – Main term or topic on left – Details on right Pause to <u>Paraphrase</u> – “So this paragraph means...”	L1 L2
<b><u>Infer &amp; Interpret</u></b> – Cite Text Evidence / <u>Re-Read</u> for understanding <u>Summarize</u> , interpret, and infer as you read	L2
<b><u>Analyze</u></b> – How does a sentence, paragraph, or quote contribute to the meaning of the whole? What rhetorical techniques make this piece effective?	L2
<b><u>Evaluate the Significance</u></b>	[Highlight the <u>evaluation</u> in red]
<b><u>Summarize</u></b> – Very Important <u>Points</u> / Name and evaluate the author’s thesis (assertion) / List relevant proof for thesis	L2
<b><u>Critique</u></b> – Was the piece effective? Any bias? Were you persuaded or moved? Was the assertion proven or logically supported?	L3
<b><u>So What?</u></b> – <u>Apply</u> and <u>Reflect</u> : Text-to-Self / Text-to-Text / Text-to- World Connections / Call to Action? / <u>New Insight?</u>	L3

# Top 10 Strategies to Improve Your Math Grades

by Jason Gibson

**Many students and parents ask for pointers and techniques to best learn Math. Here is my top-10 list which applies to any level of Math.**

**1) If you don't understand something, focus on mastering that topic before moving on to the next topic.** It sounds simple, but it is absolutely essential. Lets say a student is learning Algebra, for example. Further, lets say he or she is having a hard time understanding how to add and subtract negative and positive numbers. All of us struggle with this in the beginning as it is a sticky point for most students. Some students in this situation, out of frustration that they "can't" learn this topic, will move on to the next lesson in the hope that they will be able to understand that one.

This is a recipe for disaster.

Math is very much like learning to read. If you don't know your letter sounds then you have no hope of being able to sound out words of course there is no way possible that you could read a book. All math courses are taught in a specific sequence because the every topic builds on the previous topic. If you are having a problem with a topic, continue working with that one until you understand it and can work problems successfully. Watch the DVD section over again, attend tutoring, read the book and examples a second time, or even get a totally different book to have it explained a different way...but whatever you do not turn the page and tackle the next topic. If you do, you will get even more frustrated and you in all likelihood will begin to give up hope.

**2) Work example problems and check your answers to gain practice with every lesson.** The entire premise of the DVD series is to "learn by example" and it is quite simply the easiest way to learn Math. After watching the section on the DVD and reading the section in your textbook, begin working examples from the end of the chapter. Make sure to work the problems that have answers in the back of the book, and check every one. Always begin with the easiest problem in your book, even if you think it will be too "easy" to solve. It is very very important to build your confidence. This is why the DVD lessons begin with easier problems that no one will have any issue understanding. Gradually work harder and harder problems from your book and check your answer for each one. After working a dozen or more problems from the section (two dozen is best), you are ready to move on to the next section. Many students want to plow through a lesson just to make it to the next one. You cannot just read a section in a Math book and become an expert on that section. You must work problems. If you can't work problems then you are not ready to move on. The good news is that working problems will build your confidence, and confidence is 100% the name of the game in Math.

**3) When beginning to work a Math problem, do not "map out a path from problem-to-answer" in your head before writing anything down.** I see this almost every day. It is very common when someone looks at a Math problem that they try to "figure it out" in their head before writing anything down. Take Algebra for example. When a beginning student looks

at an equation, he or she will be tempted to solve the equation in their head and not write anything down. Students are tempted to do this most often with Word Problems. Since a word problem is written in sentence form, it is common to think that you can "think your way to the answer". I will tell you that I never, ever, solve any sort of math problem without writing it down. Ever.

What you need to do is begin by first writing down the problem. Then you begin to solve it one step at a time. Write down even the simple things. What you need to ensure is that every single step that you write down is perfectly legal. In other words, if you are solving an equation for example and you subtract "10" from both sides....write that down. Then in the NEXT step actually do that subtraction. Then if you need to divide both sides by "2" write THAT down...then in the NEXT step actually do the division. This gives you a paper trail to check your work and also it allows you to break the problem down in to bite sized chunks. If you can be sure that every single little step is legal, then you will be in good shape. If you try to do too many things at one time, which is common, you will probably try to do something illegal and get into trouble.

**4) When you study and do homework, try to find a quiet place to do it.** I was the worst offender of this while in school. I used to listen to music all of the time while trying to do homework. I'd also listen to the TV as "background noise" while studying. Over time I realized that if I had a quiet place without the background noise, I could focus much better. What I found is that when reading, for example...I would have to read something perhaps 3 or 4 times if I was listening to something else but only once if I had some quiet. People love to listen to music while studying, but I am convinced that it is much more effective if you don't. Try to find a quiet spot in your home or in the Library to get your schoolwork done and you will get your work done much more quickly because you'll be able to focus and absorb more.

**5) If someone asks you for help, try to explain the topic to them as best you can.** This one is going to seem a little odd for this list...but there is one universal truth. Those who can teach others have a true grasp of the material. Many times when studying in groups there will be one member of the group who is behind and doesn't "get it". Try to help that person, even if your own work will take longer. Not only will you feel like you are helping someone else succeed, but the process of rephrasing information back to someone else and breaking things down into bite sized chunks will increase your own understanding. It will help you understand at a fundamental level what the stumbling blocks are for the topic, which will help you as you move on in your math studies.

**6) Never, ever work math problems in pen.** This one is pretty simple. You will make a mistake; it is only a matter of time. When you do, you will want to completely erase your mistake and write over it. You will never, ever want to scratch something out and write next to the scratch-out. This will lead to a paper that is hard to read, and the scratch-outs will actually increase your anxiety about solving these problems. You want clean-neat paper with a clean well thought-out solution.



**7) Try to use a mechanical pencil with separate eraser, if you can.** Mechanical pencils have cleaner lines and the separate eraser allows you to erase more cleanly. Nothing is worse than making a mistake and trying to erase something then just smearing that all around your page. The cheap erasers will do this and make your life hard. Invest in a good mechanical pencil and a good separate eraser.

**8) Keep your solutions neat and line-by-line.** Always work problems vertically, with one step on every line. Never work horizontally. It may take more paper, but you will be able to follow your steps much more easily. More importantly, the teacher will be able to follow your work much better which allows him/her to give you partial credit. If there are just 2 steps when there should be 10, you will not be getting any points for your thought process. The steps you write down tell the teacher what you are thinking and how you are attacking the problem.

**9) Don't work problems very late at night.** I know all of the college students will be laughing at this, but it is true. I have tried many, many times to do Calculus or Physics late at night, after 12 or 1am, but you are just doing yourself a disservice. I have stared at problems for hours because I just could not sleep until I knew how to solve it...then I finally fell asleep out of extreme fatigue...but when I woke up it just seemed so simple how to proceed with the problem. Also, I have worked problems at night and got the wrong answer, and I knew I must have a silly mistake in the solution. I would usually set out to find it, but many times when you are tired you simply can't find the silly mistake. The next morning after about 5 minutes I could spot the simple sign error or even a simple multiplication error that caused the problem.

**10) If the problem lends itself to it, draw a picture of the problem.** This is most applicable for Trigonometry, Calculus, and Physics Students, but also applies to any word problem in basic math or algebra. Please do yourself a favor and draw a picture of what the problem is describing, even if your picture is simple. We are visual beings...the process of drawing the situation causes us to internalize what the problem is really asking for. It helps figure out how to proceed. If you are in Physics, you should draw a picture for every single problem that you work out. If you are in Calculus, definitely draw pictures for all related rate problems. If you are in Calculus 2 or Calculus 3, definitely draw a picture of all of your 3-dimensional problems (3d integrals). If you are in basic math and Jenny gives Bob 2 pencils and Bob gives 1 pencil away, draw that situation. It will really help you figure out how to proceed.

Remember, there is no silver bullet in learning Math. It comes with taking things one step at a time and with practice. The tips above will help you along in your math studies, and give you confidence. And confidence is 100% the name of the game in learning any level of Math.

## Guidelines for Writing 3.8 (A P E) Summary Paragraphs

Adapted from Amy Goodman: "The Middle School High Five" by Willow Hambrick

### How to write a Summary Assertion: One sentence

**Identify the Text**: Begin by identifying the piece of text you are summarizing. Include the complete title and author's full name.

Ex: "Cooking Tips for Teens by Chuck Roast"...

Ex: "Fun with Fabrics by Polly Esther"...

Avoid: This article was about... Too vague to begin a summary.

**Choose a Strong Verb**: Attach a strong verb. Notice the verb "to be" is not on this list. You may want to choose from this list:

advises	illustrates	compares	presents	contrasts
provides	describes	recommends	explains	suggests
proposes	identifies	teaches	examines	discusses

**Add the Main Idea / Theme / Key Point**: Think about the main idea of the text that you read. Ask yourself what it is mostly about. Write the main idea as a phrase and attach it to the end of the topic sentence assertion.

Ex: "Cooking Tips for Teens" by Chuck Roast recommends easy-to-follow advice for becoming an amateur chef.

Ex: "Fun with Fabrics" by Polly Esther teaches the beginner the basic steps of sewing.

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Now...Add **Proof** to Support your Assertion: 3 reasons, facts, or details from the text. **Paraphrase** (put into your own words). Write in complete sentences. Stick to the facts. Elaborate on or explain each of these facts with at least one other sentence.

Reason / Fact / Detail – **Sentence 2**

Elaborate – **Sentence 3**

Reason / Fact / Detail – **Sentence 4**

Elaborate – **Sentence 5**

Reason / Fact / Detail – **Sentence 6**

Elaborate – **Sentence 7**

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To **Conclude** your Summary Paragraph – **Evaluate** and interpret the main point. Answer the question: "So What?" Why does this information matter? Make closing statements that add perspective, thoughtfulness, and relevance. **Sentence 8**

## Proofreading Marks

Use these marks to show corrections.

Mark	Meaning	Example
∅	Take this out (delete).	I love <del>to</del> to read.
⊙	Add a period.	It was late⊙
≡	Make this a capital letter.	First prize went to <u>maria</u> .
/	Make this a lowercase letter.	We saw a <del>B</del> lack <del>C</del> at.
—	Fix the spelling.	This is our <sup>house</sup> <del>hause</del> .
^	Add a comma.	Goodnight <sup>^</sup> Mom.
∨	Add an apostrophe.	It's mine.
∨ ∨	Add quotation marks.	"Come in," he said.
! ? ^ ^	Add an exclamation point or a question mark.	Help! <sup>^</sup> Can you help me? <sup>^</sup>
̄	Add a hyphen.	Let's go in <sup>̄</sup> line skating after school.
∩	Close the space.	Foot∩ball is fun.
^	Add a word.	<sup>red</sup> The <sup>^</sup> pen is mine.
—	Underline the words.	We read <u>Old Yeller</u> .
^ ; ^ ;	Add a semicolon or a colon.	Alex arrived at 4:00 <sup>^</sup> ; Debbie came later. <sup>;</sup>

## **Literacy Strand –2014 –**

By: Willow Hambrick / Literacy Coach / Educator

### **Grading Code**

U=you need to underline something in the text

S=needs to be a complete, grammatically correct sentence (not a fragment and not a run-on)

G=grammar problem such as not capitalizing first word or not placing a period at the end

W=reword to make your answer make sense

P=plagiarism (no more than 5 words in a row the exact same as the paragraph. Copying words from the task in order to rephrase it is fine).

C=your answer needs to have a stronger connection to what the text says

Q=you did not really answer what the question (or task) was asking

R=you need to rephrase the task in your answer

M=needs more explanation or more detail

X=your answer is inaccurate or basically wrong (reread the text carefully)