



Helping Students Succeed with 24/7 Online Academic Support

Faculty Handbook





What is SMARTHINKING?

SMARTHINKING, based in Washington, DC, provides people, technology and training to help institutions offer their students outstanding academic support. Schools, colleges, universities, libraries, government agencies, textbook publishers and other education providers work with SMARTHINKING to increase student achievement and enhance learning. SMARTHINKING connects students to qualified e-structors (online tutors) anytime, from any Internet connection. From supplementing current learning support programs with SMARTHINKING's qualified and trained e-structors, to licensing SMARTHINKING's technology platform to create a private-labeled virtual learning assistance center, SMARTHINKING develops custom solutions to enable institutions to better support their faculty and students. SMARTHINKING works with more than 500 institutions.

SMARTHINKING's Philosophy

SMARTHINKING is a student-centric service that supplements on-campus courses, distance ed courses and academic support centers. SMARTHINKING provides academic assistance in the same manner its clients do on campus; that is, our tutors assist students one-on-one without giving answers or rewriting / editing papers.

SMARTHINKING Tutors ("e-structors")

SMARTHINKING e-structors are screened, trained, managed and professionally developed by SMARTHINKING's staff. SMARTHINKING e-structors are recruited from a variety of sources and include a mix of professional tutors, retired teachers, graduate students and adjunct college faculty members. Only tutors with strong backgrounds in tutoring / teaching in their respective fields are hired by SMARTHINKING. Over 85% of e-structors have a Masters degree or a PhD in their field.

To prepare e-structors to provide high-quality instruction, SMARTHINKING has developed a training program for online, one-to-one tutoring that has emerged as the industry model. Once an applicant passes a subject-specific test and matches SMARTHINKING's hiring criteria, s/he receives extensive training on effective teaching methods in an online environment, including student management, the SMARTHINKING technology and course-specific pedagogy.

SMARTHINKING is committed to ongoing quality assurance and effective pedagogy. This is reflected in SMARTHINKING's extensive training program for e-structors and dedication to ongoing professional development. All interactions between students and e-structors are saved, which allows SMARTHINKING to provide the tutor with additional feedback and professional development.

For more information about SMARTHINKING, please visit our website at <http://www.smarthinking.com> .



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Getting Started with SMARTHINKING

Technology Requirements and Troubleshooting Tips

Technology Requirements

- **OS:** Windows 98 +, Mac OS9 +
- **Browser:** Windows: Netscape 6 +, Internet Explorer 5. +, Firefox 1.0.4+
Apple Mac: Safari 1.3+, , Firefox 1.0.4+, Internet Explorer 5.1+
- **Connection:** 28.8K min. / 56K+ preferred
- **Cookies/Javascript** should be enabled.
- **Popup Blockers?** Should be disabled for www.SMARTHINKING.com

Please visit the Customer Support section of the SMARTHINKING website at <http://www.smarthinking.com> for the latest technical specifications for this service.

Troubleshooting Tips:

- Make sure that your browser is set up to allow cookies and pop-up windows. SMARTHINKING uses both of these.
- Make sure that you have Java installed. If you need to install Java, go to <http://www.java.com>, and follow the instructions for the free download.
- Make sure that you have Flash™ version 7.0.19+of for Windows or 7.0.24+ for Mac OS X installed. If you need to install Flash™, go to <http://www.macromedia.com>, and follow the instructions.

Technical Support

The SMARTHINKING Technical Support team is available to assist you via phone or email:

- Call SMARTHINKING customer support toll-free: **(888) 430-7429, ext. 1 M-F 8 AM – 6 PM ET**
- Email support@SMARTHINKING.com, and receive a response within 24-48 hours.

SMARTHINKING Hours of Service 2007

Live Sessions are metered to the minute + five minutes for archiving.

	Regular Schedule	Summer Schedule
Basic Math -Calculus	24 hours a day, 7 days a week	Sunday-Thursday: 9AM to 1AM ET Friday-Saturday: 9AM to 6PM ET
Writing, Accounting, Statistics, Chemistry, Physics, Bi-lingual Math	Sunday – Thursday: 3 PM to 1 AM ET Friday & Saturday: 12 PM to 6PM ET Hours Expanding on Sept. 4, 2007: Sunday – Thursday: 12 PM to 2 AM ET Friday & Saturday: 12 PM to 6PM ET	Sunday-Thursday: 6PM to 1AM ET
Economics	Sunday – Thursday: 3 PM to 1 AM ET Friday & Saturday: 12 PM to 6PM ET	Sunday-Thursday: 6PM to 1AM ET
Intro Human A & P, Biology, Organic Chemistry, Introductory Finance	Sunday-Thursday: 9PM to 1AM ET	Sunday-Thursday: 9PM to 1AM ET
Spanish	Available via Submit Your Question, the Spanish Essay Center, Prescheduled Sessions	Available upon request via Prescheduled Sessions

Submit a Question—metered at 20 minutes per question; available 24 hours a day, 7 days a week.

Submit Your Writing—metered at 35 minutes per essay; available 24 hours a day, 7 days a week..

Note: Summer schedule begins at 9 AM on May 29, 2007; regular hours resume at 9 AM on September 4, 2007.

Note: Drop-in tutoring will not be available during holiday closures



Topics Supported by SMARTHINKING

Mathematics and Statistics

Basic Math Skills, Algebra, Geometry & Trigonometry, Calculus I & II (Single Variable Calculus), Statistics

Basic Math Skills: Operations on Whole Numbers. Addition and Subtraction Using Fractional Notation, Addition and Subtraction Using Decimal Notation, Multiplication and Division Using Fractional Notation, Multiplication and Division Using Decimal Notation, Ratio and Proportion, Percent Notation, The Real Number System, Dimensional analysis, Number systems other than base 10, Order of Operations, Exponents, Set Operations, Venn diagrams, Logic; Truth tables, Conditionals and Bi-conditionals.

Algebra: Linear equations; Applications, Absolute value - Inequalities; Linear, Absolute value, Non linear - Functions / Graphs; Function notation, Linear, Polynomials, Translations / Shifting / reflecting graphs, Composition, Inverse functions - Roots of polynomials; Quadratic, Factoring, Complete square, Quadratic formula, Complex Numbers, Higher Degree, Factoring special cases, Synthetic division - Exponentials and Logs; Graphs, Properties, Solving equations - Systems of linear equations; 2 equations 2 unknowns, Matrix algebra, Gaussian elimination, Inverses, Determinates - Conics - Mathematics of finance; Simple/compound interest, Annuities, Amortization - Linear programming; Geometric approach, simplex method.

Geometry & Trigonometry

Geometry: Basic Definitions; Points, Lines, Rays, Angles, Triangles - Angles, Types, Measurements - Congruent Triangles - Planes and Parallel Lines - Circles, Polygons, Quadrilaterals - Coordinate Geometry, Midpoint, Slope, Distance Formula - Theorems, Postulates, and Proofs.

Trigonometry: Trigonometric functions; Angles and their measure, Right triangle trigonometry, Functions of any angle, Applications - Graphs of trigonometric functions; Inverse trig functions - Analytic Trigonometry, Solving equations, Verifying identities, Formulas -Law of Sines, Law of Cosines - Complex numbers - Vectors - Analytic Geometry; Conics, Polar equations.

Calculus: Limits; definition, limit theorems, L'Hopital's Rule - Continuity; intermediate value theorem - Derivatives; chain rule, implicit differentiation - Applications of Derivatives; Analysis of Graphs, mean value theorem, max/min, related rates - Integrals; definition, definite integrals, fundamental theorem of calculus - Integration techniques; polynomials, exponential and logs, trigonometric, substitution, trig substitution, parts, partial fractions - Applications of Integrals; length of curves, work, volume, surface area - Parametric equations - Polar coordinates - Sequences and Series; Convergence test, Power series, Taylor series.

Statistics: Descriptive Statistics, Data Analysis (Graphic Representations, Measures of Central Tendency, Dispersion, Position, Regression and Correlation); Probability (Combinatorics, Random Variables, Probability Distributions for Discrete and Continuous Random Variables; Inferential Statistics (Sampling and Sampling Distributions, Central Limit Theorem, Confidence Intervals, Hypothesis Testing, Inference Concerning Correlation and Regression); Analysis of Variance (Categorical Data Analysis; Chi-square; Contingency Tables; Homogeneity tests; Decision Theory); Process and Quality Control (Control Charts)

Spanish

Spanish tutoring supports introductory to intermediate level subjects in Spanish. For introductory level students, we cover a topics of varying levels of difficulty-students receive help on basic grammar questions, such as number and gender agreement between nouns and adjectives, or higher level topics such as the subjunctive or preterit/imperfect, "if" clauses, and the passive voice. At more advanced levels, SMARTHINKING e-structors provide help on short stories, poems and cultural readings. For questions regarding grammatical structure, or for receiving help on short paragraphs or sentences, we encourage students to submit their questions or pre-schedule sessions with an e-structors. Students may submit longer writing pieces to the Spanish Essay Center where they may choose to receive e-structor responses in English or Spanish. In their responses, e-structors provide comments, suggestions and a road map for the student to follow in improving the essay, but e-structors would not edit, proofread, or "fix" student papers.

Writing

The SMARTHINKING Online Writing Lab is designed to assist students with writing across the curriculum. SMARTHINKING writing e-structors (tutors) have advanced degrees in composition and rhetoric, literature, creative writing, and other relevant fields within the humanities. They are trained to respond to essays in a range of academic subjects (e.g. lab reports, business plans, and literary analyses) and at a range of academic levels (from "developmental" writers to graduate students). Specifically, SMARTHINKING e-structors review students' writing in the following general academic areas at the secondary through graduate levels, unless otherwise indicated: Composition; Literature; English for Speakers of Other Languages (ESOL); Creative Writing; AP English (high school); English Language Arts (high school); Writing-Intensive Courses Across the Curriculum (to include writing projects for classes in the humanities, sciences, and business, and to include thesis and dissertation projects in the humanities and business).



Science

Biology, Introductory Human Anatomy & Physiology, Chemistry, and Physics

Biology: Chemistry of Life; Evolution; Cells; Molecules; Energy; DNA; Genetics; Biodiversity; Plant Form and Function; Physiology; Ecology. SMARTHINKING tutorial support aligns with the APT™ Biology course*.

Introductory Human Anatomy & Physiology: cells, tissues, organs, and skeletal, muscular, circulatory, lymphatic, respiratory, nervous, endocrine, digestive, urinary and reproductive systems.

Chemistry: Measurement; Atomic Structure; Chemical Formula & Equations; Chemical Reactions; Thermo Chemistry; Electron Configurations; Bonding; States of Matter; Solubility; Reaction Rates; Acids & Bases; Equilibria; brief introduction to Nuclear chemistry; simple organic nomenclature & introduction to functional groups. SMARTHINKING tutorial support aligns with the APT™ Chemistry course*.

Organic Chemistry: Atomic orbital hybridization, covalent bonding, electronegativity, resonance, Lewis acid-base theory. Functional groups and nomenclature. Structure, properties, and reactions of alkanes, alkenes, alkynes, cycloalkanes. Aromaticity, properties and reactions of aromatic hydrocarbons. Structure, properties and reactions of alkyl halides, alcohols, ethers, epoxides, aldehydes, ketones, amines, carboxylic acids and carboxylic acid derivatives. Common reaction mechanisms: free radical chain mechanism, electrophilic addition, nucleophilic substitution, elimination, electrophilic substitution, nucleophilic acyl addition. Stereochemistry: E/Z-isomers, R/S-isomers, Fischer projections, enantiomers, diastereomers, optical activity. Topics supported will be of interest to students preparing for MCAT™ Organic Chemistry.

Physics: Kinematics; Forces and Newton's Laws of Motion; Work and Energy; Circular Motion; Momentum; Simple and Harmonic Motion; Fluids; Heat and Temperature; The Ideal Gas Law; Thermodynamics; Electric Forces and Electric Fields; Electric Circuits; Magnetic Forces and Fields; Optics; Special Relativity; Particles and Waves; Nuclear Physics and Radioactivity; Waves and Sound; Electromagnetic Waves. SMARTHINKING's tutorial support aligns with the APT™ Physics B, APT™ Physics C (Mechanics), APT™ Physics C (Electricity & Magnetism)* courses.

Business Studies

Accounting, Economics, and Introductory Finance

Accounting: Topics covered in Principles Accounting I and Principles Accounting 2 classes including topics such as Financial Reporting and Accounting Cycle, Operating Activities, Investing and Financing Activities, Foundations of Management Accounting, Capital Investment Decisions, and Planning, Control, and Performance Evaluation. SMARTHINKING e-structors™ are also qualified to provide support to students taking intermediate Managerial and Financial Accounting, Cost Accounting, and Tax Accounting on a pre-arranged basis.

Economics: Topics covered in Principles Microeconomics and Principles Macroeconomics classes including topics such as Basic Price Theory, the Theory of the Firm, Public Economics, Analysis of the Market Structure, Resource Allocation and Welfare Analysis, National Income Analysis, Monetary System and the Federal Reserve, Business Cycles and Growth and International Trade. SMARTHINKING e-structors are also qualified to provide support to students taking Intermediate Microeconomics and Macroeconomics, Money and Banking, International Trade and Finance, Mathematical Economics and Industrial Organization on a pre-arranged basis.

Finance: Role and objective of financial management; review of the four basic financial statements; analysis of financial statements and financial performance; the financial environment: markets, institutions, interest rates, and taxes; risk and rates of return; time value of money; bonds and their valuation; stocks and their valuation; cost of capital; capital budgeting, including cash flow estimation, decision criteria, and risk analysis; capital structure and leverage; distributions to shareholders: dividends and share repurchases/treasury stock; managing current assets/working capital; financing current assets/managing current liabilities; financial planning, budgeting, and forecasting.



Helping Students Use SMARTHINKING

When students who need help do not use SMARTHINKING, it is usually because they do not know that it is available and/or do not know how to get started. While email, posters, snail mail, articles in the student newspaper, and other marketing efforts increase awareness of the service, they are not a substitute for the information students can receive from their instructors. When instructors provide information and guidance about this service, students listen and take advantage of it when the need arises. Consider the following ways of helping your students gain access to online tutoring.

- Mention SMARTHINKING in your syllabus when discussing the resources available to students who need assistance in your course. Include a reminder in the weeks when exams will be given or projects will be due.
- Post a link to SMARTHINKING on your course web page, and include links to student support documents including the SMARTHINKING Student Flyer, Whiteboard Overview, and Student Handbook.
- Conduct orientation sessions for your classes to show them how to access SMARTHINKING, to discuss the ways in which the service can be used, and to review the ways in which use of this service can help them succeed. When possible, have students logon to the service and begin using it.
- Whenever assignments are soon to be due or tests are coming up, remind students that SMARTHINKING can help them prepare for an exam or can help them improve their writing.
- After a pre-test, review session, or a class exam, send students to SMARTHINKING to work with a tutor on concepts they do not understand or questions they miss. Correcting misunderstandings when they occur will help students get back on the path to successful course completion.
- Remind students that they have access to archives of each of their SMARTHINKING tutoring sessions. Archives can be used to review the content of a tutoring session or as the starting point for follow-up sessions with a tutor.



Integrating SMARTHINKING with Your Instruction

At SMARTHINKING, we have found that students are more likely to benefit from the academic services available to them if their instructors recommend and support those services. The suggestions below reflect the best practices of instructors who have integrated SMARTHINKING within their instructional programs.

■ **Pre & Post Exam Review**

- *Before you give a test*, have students complete a pretest or review sheet and work with a tutor on problems or concepts they do not understand.
- *After you give a test* have students review missed questions with a tutor to ensure that they are ready to proceed with new course content.

As an extra step to ensure that students follow through, have them submit a transcript of their tutoring session as a homework assignment.

■ **Help at Each Step of the Writing Process:**

- *As part of the pre-writing process*, have students use SMARTHINKING's Live Writing Center to clarify assignments, generate ideas, and develop plans for completing assignments.
- *Once a first draft has been completed*, have students submit it to SMARTHINKING for review and critique, and then use the e-structors' feedback as the basis for their essay revisions.
- *Have students brush up on their editing skills* by reviewing concepts in the *SMARTHINKING Writing Handbook* and working with a tutor in the Live Writing Center for further clarification.

As an extra step, have students include transcripts of their live sessions, and copies of their critiqued drafts when they submit their final essays to you.

Paragraph Submission Option

SMARTHINKING's **Paragraph Submission** option allows students to submit a single paragraph for review through the **submit a question** option. E-structors provide feedback for one higher-order concern and one lower-order concern for this paragraph in a way that offers suggestions and models revisions that students can apply to entire essay drafts.

When using this option, students should enter on the whiteboard a description of the assignment and the type of help they would like to receive.

■ **Special Applications**

- *Help students build **Quantitative Literacy*** by writing about mathematics. Assign students to write narratives describing solutions to open-ended problems and work with a SMARTHINKING tutor in a live or asynchronous session to review the accuracy and clarity of the content of their work.
- *Encourage students to **Show Their Work***: when completing homework assignments, and have them work with a SMARTHINKING e-structor to review the processes and solutions underlying this work. This strategy helps students understand specific concepts, and helps them to develop effective problem-solving methods.
- *Assign **Creative Exercises*** designed to promote deep understanding of course concepts and topics, and have them work with a tutor to verify the accuracy of the content they produce. These could include
 - Writing and answering new examination questions or questions that parallel those included in homework assignments or as exams.
 - Writing short (e.g. 300 words) explanations of concepts discussed in class without using numbers or jargon
 - Creating mnemonics for concepts that may be difficult to remember.

■ **Class Participation**

- *Encourage students to **Ask for Help*** when they need it. Many students are reluctant to ask questions in class, and private one-to-one tutoring allows them to receive help when they need it.
- *Award **Class Participation Credit*** to students who obtain help through tutoring. Instructors may ask students to print copies of the tutoring sessions as part of their class portfolio.



Sample Essay Return

SMARTHINKING's E-structor Response Form (Your marked-up essay is below this form.)

HOW THIS WORKS: Your e-structor has written overview comments about your essay in the form below. Your e-structor has also embedded comments [in bold and in brackets] throughout your essay. Thank you for choosing SMARTHINKING's OWL; best wishes with revising your paper!

***Strengths of the essay:** Hi Irina. Welcome to Smarthinking! I'm Melanie, and I'll be reading your essay today. You'll find my comments in bold and [brackets] in the form below and in the body of your essay. This really is a very funny story. Your sister is right; it could happen to anyone. You've done a good job of letting us know not only what happened at the restaurant, but also how this experience affected you in a larger sense. We learn both that you are the sort of person who can laugh at a misunderstanding and that you are the sort of person who took that potentially embarrassing experience and used it to help yourself gain more confidence in talking to Americans. Good for you! The most interesting stories, like yours, include a message or idea larger than just the events in the story.

***Irina has requested that you respond to the Introduction/Conclusion:** As I mention above, you do a good job of telling us why this story matters. You give us that information through your introduction and conclusion. Your introduction lets us know what your experience of English was before the super salad and that you learned something from the experience. The conclusion lets us know what you learned.

***Irina has requested that you respond to the Organization:** You have also done a good job of organizing your essay. You give us necessary background information in the introduction. Then, you move through the events in chronological (time based) order in the body of the essay. Then, your conclusion tells us what you learned from the events. That sort of organization is quite clear. There are a couple of small places where I wasn't sure about the order of information. I have included notes about those in the body of your essay.

Transitions: You use dialogue well in your essay. There are some rules for presenting dialogue that you will want to pay attention to.

- 1) Each time you switch speakers, start a new paragraph.
- 2) Use commas to join dialogue to clauses like "she said" and "I replied."
- 3) Commas and periods always go inside of quotation marks.

So, let's look at some sample dialogue:

Joe walked into the room. As he threw himself into a chair, he said, "Man, I had a rough day."

"Oh?" replied Mary, continuing to stare at the television.

"Yeah, you wouldn't believe what my boss did. I think I'll quit this job."

"Mhmm," said Mary. She'd heard it all before.

Take a look at this dialogue. How might you use it as a model to help you restructure your dialogue?

Word Choice: Make sure that you proofread your essay carefully. There are a few places where you replace a word with one that is close to the same spelling: for example, "though" with "tough." Try reading your essay out loud slowly to listen for these kinds of errors. Keep an eye out for other grammatical issues as well.

Summary of Next Steps: Irina, You've done a very nice job of giving your essay a clear structure and of telling us both this specific funny story and how it affected you. Now, as you revise, pay attention to the following issues:

- 1) Look at the places where I have asked some questions about organization.
- 2) Restructure your dialogue so that it follows the normal rules for presenting dialogue.
- 3) Proofread carefully for the grammar issues I mention and other ones.

Thanks for sending in your essay! It was a pleasure to get to read it.

Melanie

Please look for more comments in your essay below. Thank you for using our service, and we encourage you to submit future essays.

SOUP OR SALAD?

One year ago, when I moved from Germany to America, I had a really hard time to understand the American culture because I didn't speak English so well and I also had problems to understand people. **[When we want to refer to a particular action in a noun-like way, we use the -ing form of the verb. So, I might say, "I love running," or "She likes talking to me." Here, you want "understanding."]** I often avoided face to face conversation with people because I was scared of misunderstanding, and I never answered a phone. I thought that I would never learn how to speak to people and not to be afraid of misunderstanding. However, when my sister came to visit me last summer, I learned that speaking to people in English can be extremely funny.

Last summer, before my sister visited me, I thought that I would never learn how to speak English. On the day my sister arrived from Colorado in San Jose, California, we decided to go to a nice Italian restaurant in a nice area of Los Gatos. In the restaurant, I wanted to impress my sister, so I decided to order food for her and myself. I taught today is a day where I won't be scared to speak to people because my sister is with me. My sister could speak English very well, so I wasn't afraid of misunderstanding, and I knew she would help me out if I have some problems with speaking. **[Here, you want a past tense. You might have "had some problems." "If I have" suggests that you are discussing something that might happen in the future.]**

When a waitress came to our table, I was ready to order food and to have a little conversation in English. The waitress asked me if we would like to have a soup or salad for an appetizer. I understood *super salad*. So in my mind, I pictured a huge super salad with a lot of lettuce, tomatoes, onions, and a blue cheese dressing. This imagination made my mouth watering and my stomach started to make noises. **["Imagination" is our ability to think of things. "Image" is something that we might see in our minds or with our eyes.]** So, I said to her: "Yes, we would like to have a super salad. The waitress looked at me very confused and asked me again: "So, would you like to have a soup or salad?" Now, I was very confused and I felt very stupid. So, I told her that we would like to have the *super salad* with some lettuce, tomatoes, and onions. "So, you want the salad", she said. "No, I don't really want salad, but you actually asked me if we would like to have the *super salad*": I replied. **[Using a comma after a quotation is correct. A colon can introduce a quotation sometimes, but it can't follow one.]** At this moment, my sister helped me out and I felt very embarrassed, but the waitress and my sister were laughing and having a good time.

At the end, even though, I felt embarrassed, I thought that this misunderstanding is the funniest misunderstanding I ever had in America. My sister tried to make me feel better when she said that this could happen to anybody. I couldn't believe that I misunderstood something simple like soup or salad. I tried to forget this soup or salad moment but it was too funny to forget. On this day, we enjoyed our dinner together more than ever. **[The first part of this paragraph sounds like you are stepping back and reflecting on the experience from a distance, but the last sentence sounds like you are still telling us what happened in the experience. Shifting from showing us the experience up close to reflecting on it from a distance and back to showing it up close can be confusing. Could you stay focused on the details of the experience until you are ready to completely shift to discussing it? How might you change the order or wording of your ideas so that they seem clearer?]**

This soup or salad misunderstanding in the restaurant showed me that I shouldn't be afraid of any conversation with people. I started to meet American people and I started to speak better English. I was glad that I had experienced a funny misunderstanding because it gave me an interest in going out and meeting American people. When I go out to eat with my husband and we order an appetizer, I often think about my funny soup or salad moment and it makes me laugh. **[You do a good job in this conclusion of letting us know how the super salad moment has affected you. That's exactly the kind of information we want in a conclusion.]**

Sample Math Interaction

Hi I have a question. Can you help me?

Hello Tammy! welcome back - Jim here, so what will be the question today

Between what two whole numbers is the value of the radical expression $\sqrt{23}$ What do they mean by between two whole numbers?

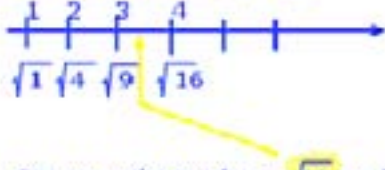
The set of whole numbers is: $\{0, 1, 2, 3, 4, 5, \dots\}$ or you could say the non-negative integers (or non-negative integers) so we want to find two whole numbers, w_1 & w_2 so that $w_1 < \sqrt{23} < w_2$

ok, i understand integers my teacher talked about that last week.

Let's look at a similar example...

ok great

let me draw a number line



Here, we note that $\sqrt{4} = 2$ etc...

Can you point to where $\sqrt{11}$ would lie on this number line?

would it go between the 9 and 16?

That's dose Tammy, but to clarify, our number line doesn't contain, 9 and 16, it contains, 3 & 4, which are the positive square roots of 9 & 16 respectively.

yeah, that's what I was trying to say :-)

Ok, I'll draw an arrow to locate $\sqrt{11}$

ok Tammy, so let's look back at your original question.

$\sqrt{23}$ what is a perfect square, that is just a little larger than 23?

hemmm thinking, 25 good job

and how about a perfect square that is smaller than 23? $16 = 4^2$

so I would say $4 < \sqrt{23} < 5$ yes, that is correct Tammy.

Do you understand how to approach this problem now?

yeah - it's not too bad after all - thanks Jim, bye Bye for now.

Sample Chemistry Interaction

Is this equation balanced? ... $C_2H_5OH(l) + O_2 \rightarrow CO_2(g) + H_2O(g)$

Hi Bryan... Let me ask you what do you need for a balanced equation?

Hi Bob... I think you can do this by trial and error... or inspection?

Well, let's start by counting the number of carbons on the left side (reactants) - how many are there?

2 in the first and 5 in the - oh... just 2 carbon atoms

?? ok, good. How many on the right? One?

So this is unbalanced... what do you have to multiply the CO_2 by to balance the carbon atoms?

$C_2H_5OH(l) + O_2(g) \rightarrow 2CO_2(g) + H_2O(g)$ Mult by 2

Good, now how many Hydrogen atoms on the left (reactants)? 5

None, don't forget the Hydrogen in $OH(l)$ I see so it is 6 H atoms

good... How many H's on the right? Only 2

So you would? Multiply $H_2O(g)$ by 3... excellent.

$C_2H_5OH(l) + O_2(g) \rightarrow 2CO_2(g) + 3H_2O(g)$

How the oxygen atoms on the right? 3?? remember you have 2 $CO_2(g)$ + 3 $H_2O(g)$
so that is 4 + 3 = 7 Oxygen atoms on the right.

Correct, so how many do you need on the left? I add atoms to both sides?

right - we start with the reactants (left) because $C_2H_5OH(l)$ is the most complicated molecule
(since the O_2 molecule has only oxygen (and no other elements) we can leave it till last)

Okay, so I would need 3 $O_2(g)$ on the left plus the O from $OH(l)$ to give me 7

$C_2H_5OH(l) + 3O_2(g) \rightarrow 2CO_2(g) + 3H_2O(g)$

right...very good.

Wow - that is not too bad.

Any more questions Bryan? None Oh, come again

Bye for now

with Charles | Greg Charles | Ursula Charles | Quesha Charles

The SMARTHINKING Image Capture Tool

The SMARTHINKING whiteboard includes an Image Capture Tool that allows you to bring images or text to the tutoring session. Anything that you can display on your computer can be captured and sent to the whiteboard quickly and easily.

The image capture tool is found under the tools menu within the whiteboard. Click on **TOOLS** and then **IMAGE CAPTURE** to access this option.

Once you access the **IMAGE CAPTURE TOOL**, you will have three options available:



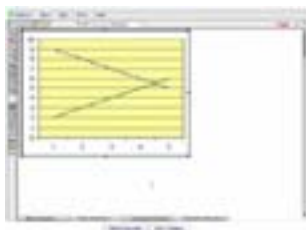
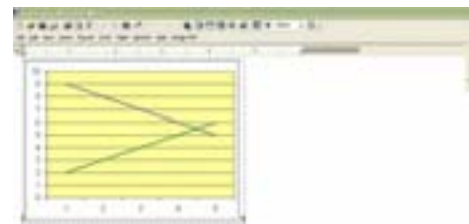
Use of each is described below, and complete instructions are provided for each of these options within the **IMAGE CAPTURE TOOL** window.



SELECTED AREA

With this option, you select a portion of the image or document to display on the whiteboard.

- Open the document or image you want to bring to the whiteboard, and position it directly behind the **IMAGE CAPTURE TOOL** window.
- Click **CAPTURE**. The **IMAGE CAPTURE TOOL** window will be minimized and the window directly behind it will be displayed. In addition, your cursor will turn to cross hairs - hold down the left mouse button and drag the cross hairs across the screen to select the desired capture area. In the picture below, the selected area is enclosed in dashed lines.
- Once you release the mouse button, the **IMAGE CAPTURE TOOL** window will appear again; however, this time the image you have captured will be displayed.



At this point, you have three options available to you.

- **SAVE**- Save the image you have captured to your hard drive in either .jpg or .png format. Files in .jpg or .swf formats may be uploaded directly to the whiteboard using the **LOAD IMAGE** option on the **TOOLS** menu.
- **SEND**- Send the item to the whiteboard.
- **RECAPTURE**- Re-start the capture process.



WINDOW

With this option, you select a window to display. Its entire contents will be moved to the whiteboard.

- Open the document or image you want to bring to the whiteboard, and position it. Once you release the mouse button, the **IMAGE CAPTURE TOOL** window will reappear.
- Click **CAPTURE**.
- Click the icon on the Windows taskbar that corresponds to the window you want to capture. Click **OK** when prompted.
- The contents of the selected window will now appear in the **IMAGE CAPTURE TOOL** window, where your choices are the same as they were when the **SELECTED AREA** option was used: **SAVE**, **SEND**, or **RECAPTURE**.

FULL SCREEN

With this option you can send the entire contents of your desktop to the whiteboard.

- Arrange your desktop so that the information you wish to send to the whiteboard is displayed. You may need to move the **IMAGE CAPTURE TOOL** window or other windows to the side in order to accomplish this.
- Click **CAPTURE**.
- The contents of the selected window will now appear in the **IMAGE CAPTURE TOOL** window, where your choices are the same as they were when the **SELECTED AREA** option was used: **SAVE**, **SEND**, or **RECAPTURE**.

The Whiteboard

Students use the SMARTHINKING whiteboard to interact with an e-structor either in an online session or by submitting a question. The whiteboard allows you and the tutor to enter text, symbols, and drawings that identify and help resolve your questions.

Entering Text

- Right click with your mouse and type at the point where you want text to appear on the whiteboard.
- To delete text, place your cursor to the right of the letter (or word) you want to delete and hit the backspace key until you have removed all of the letters/words you want to remove. Each time you hit the backspace key, you will delete the letter to the left of the cursor.



Setting Text Properties

Use the property bar at the top of the whiteboard to establish the characteristics of your text. You must set the properties **before** you begin typing. Changes cannot be made to text after it is entered.

You can set the **FONT** and **POINT SIZE** of your text, and you can determine whether it will appear as standard, **BOLD**, or **ITALIC**.

- Available **FONTS** include verdana, serif, and symbol. Click on the arrow to the right of the font name and select the one you want from the list.
- **POINT SIZES** between 8 and 30 may be used. To adjust point size, click on the up or down arrow on the left side of the properties bar.
- Click on the **B** to make your text **BOLD**, click on **I** to use **ITALICS**.

Note: Your text will always be red, and your tutor's text will always be blue; these colors cannot be changed. This way, you will always be able to tell who typed what on the whiteboard, even when you come back later to review a session.

Pasting Text from Other Applications

- Choose **TOOLS** from the top menu bar.
- Select **PASTE TEXT**.
- Use **CTRL V** to insert the text you want to paste on the whiteboard
- Click **PASTE** to place the text on the whiteboard.

Using Special Language Characters

In addition to standard text, the whiteboard includes four special character sets: Math, Greek, Language, and Chemistry. These can be used whenever you use the whiteboard. Just click on the name of the character set you want and a pop-up menu will appear, listing the available characters from the selected set. These menus can be moved around on the whiteboard so that they are available for use during a tutoring session. Click on the character you want to use, and it will appear on the whiteboard.



Special Tools

The tools listed below are found at the top of the whiteboard, and are used to change the whiteboard's contents.



Clear Board: Deletes all content on the current whiteboard page.



Copy: Copies a drawing to the clipboard.



Print: Prints the contents of the whiteboard.



Paste: Places a copy of your drawing on the whiteboard.




Cut: Cuts/deletes drawings from the whiteboard.

Note: The cut/copy and paste functions only apply to drawings. A separate function (select) is used to move text around on the whiteboard. See below for information on moving text.

These tools are found along the left side of the whiteboard



Use **Select** to mark text or drawings that you want to move, or drawings whose properties you want to change. Selected items will be placed in a yellow box . You can move items around on the whiteboard by holding and dragging the yellow box. When selected, you can resize drawn items (but not text) and you can change their properties (weight or thickness and color).



Note: Leave at least 4 spaces around the perimeter of the work you want to move to ensure that text and objects are moved together.



Use the **Highlighter Tool** to draw attention to drawings and text. You can change the weight (thickness) and color of the highlighting by using the properties menu.



Use the **Line, Curve and Freehand Drawing Tools** to create lines, curves, and freehand drawings. Use the properties menu to change the weight (thickness) and color of these drawings.



Use the **Rectangle and Oval Tools** to create basic shapes. Select these items to reshape or resize them. Use the properties menu to change the weight (thickness) and color of these drawings.



Use this tool to **Draw Fractions** on the whiteboard. Select the tool and then click on the whiteboard. Enter the numerator of your fraction and hit enter to move to the denominator. Enter the denominator. Hit enter again to complete the fraction and move to the next step.



Use this tool to **Draw Rectangular Graph Paper** on the whiteboard.



Use the **Parentheses, Root and Integral** tools to place these symbols on the whiteboard.



Use the **MATH** button to choose one of the available math symbols.



Use the **SCIENCE** button to choose one of the available scientific symbols.



Use the layer button to change the order of items that have been placed on top of each other on the whiteboard.

