

CRITICAL THINKING

Learning by Doing *Workplace Math*



Teach them to think...

They will see and experience the world differently

And their lives will be changed forever

ThinkSharp introduces its Critical Thinking ^{75-90™} curriculum, using best teaching practices and advanced delivery technology. Critical Thinking ^{75-90™} is based upon the most useful applied mathematical methods from the workplace, which only require basic arithmetic to be successful. It enables students and workers to develop their problem solving and critical thinking skills as they learn these useful methods and motivates them to better appreciate the relevance of math and to gain confidence in their abilities to problem solve.

Mathematical thinking is a key element to development of problem solving and thinking skills. According to the NCTM, it “opens doors to productive futures.” There is a lack of appreciation and confidence in learning and using math. This aversion to math has effectively created a filter which affects further study in math and science for many students and has adversely affected problem solving and thinking skills of students and workers. Using ThinkSharp’s methods, teachers and trainers have noted students’ excitement about learning and solving challenging problems when learning occurs in this model, as well as increased career awareness, problem solving persistence, creativity, self-concept and improved interpersonal skills.

The ThinkSharp Curriculum Key Elements

Critical Thinking^{75-90™}

Pioneered by Dr. Bill Sacco, applied mathematician, Critical Thinking^{75-90™} is a curriculum of the 75 analytical concepts used in solving 90% of problems in the workplace. They represent the most useful analytical approaches in business today. While these are the bellwether methods to solve problems of various types, settings and industries, they are simple, and even the most powerful algorithms require only arithmetic skills to understand. The 75 concepts are cross disciplinary and reflect the top methods from statistics, operations research, and other applied mathematics.

Case Study Based Learning

ThinkSharp uses multimedia and online technology to recreate real world case studies that put students in the middle of problems from various industries and workplace settings. Students not only learn these widely used methods, but when and how to use them to become resourceful problem solvers and gain the experience needed to recognize problem solving opportunities. These experiences also expand students' career thinking and opportunities, and improve their value in the workplace.

Instructional Philosophy — Delayed Revelation

Having been placed in the middle of real problems, students are challenged to create solution strategies on their own through an instructional approach called "Delayed Revelation," which maximizes learning retention. Questioning is then structured for students to discover weaknesses in their strategies, hopefully leading them to an "aha," and enabling them to revise their method. Ultimately, each problem leads the student to a tutorial on the preferred method(s) for solving the problem. By the time the tutorial is invoked, students are vested in the problem, and ready to learn.

How ThinkSharp Products are used within a School

ThinkSharp's case based curriculum is modular and, as a result of its workplace content and pedagogy, can be assembled to fit within a number of areas of a college such as the following:

- ◆ 3 credit courses in programs such as math, interdisciplinary and emerging issues in critical thinking, business, nursing and allied health. These courses can be delivered in a classroom setting, as a distance learning course, or in a blended learning format.
- ◆ Supplementary programs to augment existing classes in courses such as discrete math, mathematical thinking, statistics, operations research, etc.
- ◆ Continuing education seminars building on problem solving skills.
- ◆ Customized workforce training sessions to match specific industry needs.
- ◆ Dual education courses to reach out to high school students to motivate them to learn math.

The ThinkSharp programs are great for both gifted and talented students as well as those students who have not yet had the opportunity to be successful and/or appreciate the value of math. They also provide valuable resources to teachers, who wish to incorporate learning by discovery methods and the use of technology into their instruction.

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