OVERVIEW OF VERMONT'S FRAMEWORK OF STANDARDS

The Vital Results

Communication

Reading
- Strategies
- Accuracy
- Comprehension
- Range of text

Writing
- Dimensions
- Conventions
- Responses to literature
- Reports
- Narratives
- Procedures
- Persuasive writing
- Personal essays

Listening
- Clarification
- Critique

Expression
- Speaking
- Artistic dimensions
- Notation and representation

Information Technology
- Research
- Informational sources
- Communication of data selection
- Simulation and modeling

Reasoning and Problem Solving

Questioning
- Comparing and contrasting
- Making connections
- Reflecting
- Evaluating

Solving Problems
- Process
- Types
- Effectiveness
- Mathematics dimensions

Persistence
- Application
- Information
- Taking risks
- Persevering

Abstract & Creative Thinking
- Fluency
- Elaboration
- Flexibility
- Product / service
- Plan / organize

Personal Development

Worth and Competence
- Goal-setting
- High-quality work
- Learning strategies
- Respect

Health
- Development
- Disease prevention
- Personal health
- Access to health resources
- Nutrition
- Fitness

Informed Decisions
- Evidence vs. opinion
- Personal economics
- Environment

Relationships
- Teamwork
- Interactions
- Conflict resolution
- Family systems

Workplace Skills
- Dependability and productivity
- Career choices
- Transition planning

Civic and Social Responsibility

Service
- Serving others
- Democratic process

Diversity
- Cultural expressions
- Effects of prejudice
- Collaboration in community

Continuity and Change
- Personal and family changes
- Systemic changes
- Societal and cultural changes
- Environment changes
- Historical changes

The Fields of Knowledge

Arts, Language, and Literature

Critical Response
- Eras and styles
- Times and cultures
- Aesthetic judgment
- Point of view
- Critique and revision
- Audience response

Literature and Media
- Types of literature
- American literature
- Diverse literary traditions
- Literary elements and devices
- Literate community response
- Design and production

The English Language
- Changes in language
- Conventions
- Structures of language

Non-Native Language
- Speaking and listening
- Reading
- Writing

Artistic Process
- Intent
- Critique
- Artistic problem solving
- Exemplary works
- Analysis
- Perspective

Elements, Forms and Techniques
- Artistic proficiency
- Visual arts
- Music
- Theater
- Dance

History and Social Sciences

Critical Evaluation
- Causes and effects
- Evidence and data
- Interpretation
- Bias and propaganda
- Public issues

History
- Historical eras
- Concept of time
- Interconnection
- Community history
- Vermont history
- U.S. history
- World history
- Traditional / social

Geography
- Maps and globes
- Cultures and regions
- Settlements and ecosystems

Citizenship
- Rights and responsibilities
- Types of government
- Justice and equality
- Democracy

Diversity and Unity
- Concepts of culture
- Universal themes

Economics
- Economic systems
- Production, distribution, and scarcity

Conflicts and Conflict
- Resolution
- Social theory/ problems
- National and international

Identity and Interdependence
- Identity construction
- Levels of identity

Science, Mathematics, and Technology

Inquiry, Experimentation, and Theory
- Scientific methods
- Investigation
- Theory
- Science and math history
- Roles and responsibilities

Mathematical Understanding
- Arithmetic number and operation concepts
- Geometry and measurement
- Function and algebra
- Statistics and probability

Mathematical Reasoning
- Applications
- Connections
- Generalizations

Systems
- Analysis
- Interdependence

Space, Time, and Matter
- Matter, motion, forces, and energy

The Living World
- Organisms and evolution
- The human body

The Universe, Earth, and the Environment
- Theories
- Systems
- Forces

Design and Technology
- Resource distribution
- Technological systems
- Outputs and impacts
- Designing solutions

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The Vermont Business Roundtable is a non-profit, non-partisan organization of 120 chief executive officers representing geographic diversity and all major sectors of the Vermont economy. The Roundtable is committed to sustaining a sound economy and preserving Vermont's unique quality of life by studying and making recommendations on statewide public policy issues.

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WHAT HIGH SCHOOL GRADUATES NEED TO KNOW TO MAKE THE GRADE IN TODAY'S WORKPLACE.

What is today's workplace like and what will it be in the future?

What skills will be required?

How will people work together?

What will be the role of technology?

What will be the role of schools?

What will you need to know?

The Vermont Business Roundtable thinks it is important to raise these questions with students, parents, educators, government officials, and the business community.

The Vermont Business Roundtable believes these questions are important to all Vermonters. This publication summarizes the state's education goals and describes what students should be able to do in the workforce after meeting these goals. We have included seven employment areas which are important to the Vermont economy now and in the future. Each shows how technology and worldwide competition have raised the skill level required for young people to gain employment. These skills are linked to the expectations for high school graduates that appear in Vermont's Framework of Standards and Learning Opportunities. These expectations establish standards which every graduate who plans on being employed must meet.

HOW JOBS ARE CHANGING

Two terms that we use repeatedly in this publication are "high tech" and "teamwork." High-tech refers to jobs that rely on new technology such as telecommunications, computer applications, and advanced manufacturing. Telecommunications includes data networks, faxes, electronic mail (e-mail), electronic funds transfers, and satellite communications. For example, when you use the Automated Teller Machine (ATM) at a bank you are using telecommunications. Telecommunications are used by pharmacists to check records, libraries to find books, and cashiers to charge to your VISA or MasterCard. Technology is rapidly changing the workplace and such changes will continue as new technology is developed.

In the past, many jobs did not require teamwork as people could come to work and carry out their particular job at a work station without having to do much with anyone else. The work site of the present and the future is rapidly moving to one where everyone has to work together to get the job done. In teams people need to share skills and training to continually improve the quality and efficiency of the process. It is an integrated process that can only happen if all employees (the engineer, the technician, the designer) work together as a team.

Many companies are changing their structure by placing increased decision-making powers with employees. This requires that employees collaborate to make well thought out decisions not only about their particular work, but about larger, company-wide issues as well. Such teamwork requires good interpersonal skills, strong communications skills, the ability to get along with many different people, and problem-solving skills.

Manufacturing and Production Employment

These high-tech jobs require advanced mathematical skills including statistics, communications skills, problem-solving skills, the ability to work in a team, and some basic physics and chemistry. A high-tech production worker may have to use mathematics to predict and verify, to visually represent manufacturing processes, or to find and communicate patterns. A high-tech production or assembly worker will no longer be manually putting parts together. The worker will more likely be operating a computer console and monitoring the manufacturing process by interpreting data on a computer screen. The worker needs to understand basic statistics, to read and interpret graphs, read and compute ratios, rates, and percentages. This individual must be able to read and write reports and work with spreadsheet and word processing software. Teamwork is vital because the production workers and engineers work together to solve production problems. In the future, there will be an even greater emphasis on statistical processes, teamwork, and problem-solving.

Sample Occupations: assembly line worker, production operator, printing press operator

Past Requirements: routine assembly tasks, traditional industrial arts

Present / Future Requirements: basic physics & chemistry, communications skills, process control statistics, problem-solving ability, math, adaptability, initiative

Agriculture Farm-Based Employment

Our small family farms are disappearing. The farms that can survive here and across the nation will be the larger, more mechanized and more technologically advanced farms. This means that the farmer will be doing less work with the animals and less field work; more time will be spent managing employees, making complex financial plans, dealing with labor and environmental regulations. The farm worker will have to read and understand regulatory documents and other technical material, and write clearly. The farm worker will also require higher level skills in mechanics, electronics, bio-technology applications, mathematics, and animal husbandry. Computation skills will be required to manage data and to interpret that data to make decisions about feed programs, fertilization, environmental concerns, herd management, labor costs, and other aspects of the large dairy farm.

Sample Occupations: farm manager, farm worker

Past Requirements: on-the-job training, basic mechanical skills

Present / Future Requirements: communications skills, complex computations, computer literacy, animal husbandry, environmental sciences, chemistry, agronomy

General Office Employment

Today's office worker needs to have keyboarding skills, an understanding of basic computer operations, and the ability to use advanced telecommunications such as modems, cellular technology, fax technology, and voice mail. Word processing skills and knowledge of a variety of software such as spreadsheets, databases, scheduling, project management, and word processing are necessary. The office worker must have the ability to adapt to new technologies. Skills will need to be continually upgraded to keep pace with constant changes. General office employment will require the employee to be able to work collaboratively with others. In the future, the office worker will need to understand complex computer networks, image processing, video communications, and desktop publishing.

Sample Occupations: secretary, clerk, receptionist, bookkeeper

Past Requirements: typing, dictation, shorthand, filing

Present / Future Requirements: communications skills, computer literacy (word processing, database), telecommunications technology (fax, modem, voice mail, electronic mail), problem-solving ability

Health Care Employment

The rapid increase in the types of procedures and services is having a great impact on medical related employment. For example, advances in technology have resulted in increasing numbers of sophisticated new procedures which require increasingly skilled personnel both to administer and operate. As people live longer and stay in their homes, RNs and other health professionals will be called upon to provide services at home and in other settings which are now done only in offices or hospitals. These new settings will require more communication with patients, families, and doctors as well as resourcefulness to address the challenges of non-hospital locations. The ability to learn new skills, to solve problems independently and in consultation with others, and a high degree of technical literacy will all be essential in the various allied health care operations.

Sample Occupations: registered nurse (RN), dental hygienist, physical therapist, occupational therapist

Past Requirements: basic biology & math, communications skills, ability to follow directions

Present / Future Requirements: advanced analytical & diagnostic skills, computer literacy, advanced biology, flexibility, adaptability, communications skills, ability to work independently

Technical Service Employment

The days of learning on the job and acquiring skills through tinkering and working on one's own are being replaced by apprenticeships, specialized vocational courses, and post-secondary education. For example, today's auto technician is continually retrained as automobile technology changes. Knowledge of computers, electronics, and sophisticated mechanical systems such as antilock brakes and emission controls are required; the best technicians will need to continually upgrade their skills. Technical service employment increasingly will require communications skills to work with customers and supervisors, diagnostic skills to analyze complex systems, as well as knowledge about electronics, computers, and mechanics.

Sample Occupations: certified technician, industrial equipment/home electronics/office products repair, building maintenance

Past Requirements: basic mechanical operations, prior experience, basic math & measurements

Present / Future Requirements: computer literacy, communications skills, advanced electronics & diagnostics, graph/chart/technical manual interpretation, problem-solving ability

Customer Relations Employment

Contrast what the cashier in a K-Mart or other large retail store does compared to our local "Mom & Pop" store. In newer and larger stores cashiers are expected to be able to use new technology such as bar code scanners, modems, computers, and high-tech cash registers to process cash, credit, and debit sales. As new technology is constantly being developed, the cashier needs to be able to upgrade his or her skills. Retail service employees provide customer service to a wide variety of people and often solve customer problems and complaints; they need to know where to find the answers. The employee needs communications, problem-solving, and computation skills as well as the ability to be a continual learner. As the technologies and products in stores and other retail businesses become more complex, the salesperson will have to learn new computer skills as well as keep up with changes in product lines, manufacturer information, and store policies. As credit cards and debit cards increase in use, the retail worker is going to have to be able to deal with electronic funds transfers.

Sample Occupations: sales person, cashier, bank teller

Past Requirements: basic computation, good customer relations

Present / Future Requirements: computer literacy, electronic mail, information management, communications skills, leadership & problem-solving ability, product knowledge

Construction Employment

Changes in regulations, labor laws, and material specifications require high level skills. Workers in construction must be able to interpret detailed blueprints and diagrams, understand and apply complex building codes, zoning regulations, and environmental laws. As more high-tech materials are developed, the construction worker must understand their specifications and applications. A construction project manager must have strong communications skills to work with a variety of people.

Sample Occupations: project manager, equipment operator, carpenter, mason

Past Requirements: on-the-job experience, basic math & geometry, basic reading & writing

Present / Future Requirements: cost analysis, computer sciences, problem-solving & decision-making ability, communications skills; codes & standards knowledge

Vermont's Education Goals for the Next Century

Vermont developed its Framework of Standards and Learning Opportunities to help assure that young people are prepared with the fundamental knowledge and skills for successful lives in this changing world. The Framework describes the essential areas of learning and outlines the "Vital Results" that Vermonters want their schools to provide in the four categories of communication, reasoning and problem-solving, personal development, and civic and social responsibility. This publication illustrates the connection between the Framework and employment now and in the future.

Conclusion

Changes in our education system will enable our young people to make the transition from school to the workforce. Just as important, these changes must prepare our young people to be active, engaged participants in our democratic society. The need for high standards in our schools and high performance from our graduates is even more compelling when we look at the changes they will be facing in society and the workplace.

The rapid development of technology means that they need to continually develop their skills to be able to use technological innovations in the workplace and in the community. An increasingly complex world combined with changing jobs and job requirements means that these students will need to be lifelong learners. Communications skills (written, verbal, and symbolic) are increasingly important in all categories of employment and in understanding the global society. Reasoning, problem-solving, and critical thinking are skills that must be continually developed in a democratic society where acquiring and using knowledge is central to productivity in the workplace and responsible citizenship.

The Vermont Business Roundtable believes that all students must gain the knowledge and skills resulting from the implementation of Vermont's Framework of Standards and Learning Opportunities. In addition to helping young people achieve success in the workplace, this knowledge and these skills will enable them to be responsible and informed citizens. Vermont's Framework helps to establish world-class standards that schools and communities need to address. To assure a successful future, Vermont students must have access to a quality education that enables them to perform as competent, productive, and engaged members of the workforce and of society.

FROM HIGH SCHOOL TO WORKPLACE