

**Prepared for the NAE/CSMEE  
Committee on Technological Literacy**

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**Why is it in the Nation's interest to increase technological literacy?**

I define literacy as the knowledge and skills that a citizen needs to lead a productive and interesting life. By productive and interesting I mean that a citizen holds a job that provides at least a living wage, and is aware of and participates in the primary activities of society. One hundred years ago literacy by this definition meant the ability to read, write, communicate, and do simple mathematics. The ability to do physical work might also be included along with a taste for sports, and the arts, but not much more. And one job could last a lifetime.

Literacy in the early twenty-first century is more complicated. Physical labor is not so much in demand, most jobs require technical skills involving machines, and most jobs have a fairly short life span before they are completely transformed by technology. Society is more complicated. Mass media bombard us with noise that may contain some embedded information. Complicated technical, political, legal and economic issues face all citizens and require personal and collective decisions. The time scale for significant change of most anything you can define is shorter than the time between generations. Learning one's father's job is not economically viable because those jobs won't exist any more. The rules of one hundred years ago don't apply and literacy in the twenty-first century includes not only knowledge of reading, writing, and arithmetic, but also basic knowledge of science, social systems, the arts (including the mass media), and technology. And most importantly it includes the ability to stay abreast of change by continuously learning new ideas and skills and their applications.

Technological literacy is a key element in the list above and one largely missing in today's school curriculum. By technological literacy, I mean a basic knowledge of the nature of technology and an understanding of the important ideas in the major areas of technology that impact society. The list should include at least engineering design, agriculture, materials, construction, manufacturing, transportation, communications, and information technologies. Technological literacy is not sufficient, but it is a necessary component of the overall literacy desirable for all citizens in the early twenty-first century. The other pieces listed above that make up literacy are also necessary and present further challenges to the education system.

The table below illustrates one way to sort and display the need for technological literacy. Most arguments you will run across can be sorted into one of the cells. My claim is that

it is the accumulation of the reasons in all six cells that make the real case for technological literacy, not just one or two.

### APPLICATIONS OF TECHNOLOGICAL LITERACY

	<b>Economic</b>	<b>Political</b>	<b>Cultural</b>
<b>Individual</b>	Almost all jobs require existing and evolving technical knowledge and skills.	Good personal choices involving the use of technology require sufficient knowledge.	Technology is integral to almost all human activities. Technological literacy enables a unique way of thinking about some things.
<b>Societal</b>	The competitiveness of the nation's economy and viability of the global economy depends on a well trained and continuously improving workforce.	Good political choices on most issues depend on sufficient technical understanding.	Technology is integral to almost all human activities. We are a technological society.

Of course, this table can be filled in for any of the other “disciplines” listed above. That does not diminish the importance of technological literacy, but can be used to place it in the context as one absolutely necessary part of a basic twenty-first century education.