

21st Century Skills Alignment

Student Outcomes



Legend

•	The standard is clearly addressed by program activities.
-	This standard potentially could be addressed as part of <i>FIRST</i> [®] LEGO [®] League Discover either by actions that the coach or teacher takes when working with the students or by conditions established by the program.

Core Subjects

Cluster	Indicator Statement	Addressed
Global Awareness	Using 21st century skills to understand and address global issues	-
	Learning from and working collaboratively with individuals representing diverse cultures, religions and lifestyles in a spirit of mutual respect and open dialogue in personal, work and community contexts	-
	Understanding other nations and cultures, including the use of non-English languages	
Financial, economic, business and entrepreneurial literacy	Knowing how to make appropriate personal economic choices	
	Understanding the role of the economy in society	
	Using entrepreneurial skills to enhance workplace productivity and career options	
Civic literacy	Participating effectively in civic life through knowing how to stay informed and understanding governmental processes	
	Exercising the rights and obligations of citizenship at local, state, national and global levels	
	Understanding the local and global implications of civic decisions	
Health literacy	Obtaining, interpreting and understanding basic health information and services and using such information and services in ways that are health enhancing	-
	Understanding preventive physical and mental health measures, including proper diet, nutrition, exercise, risk avoidance and stress reduction	-
	Using available information to make appropriate health-related decisions	-
	Establishing and monitoring personal and family health goals	
	Understanding national and international public health and safety issues	-
Environmental literacy	Demonstrate knowledge and understanding of the environment and the circumstances and conditions affecting it, particularly as relates to air, climate, land, food, energy, water and ecosystems	-
	Demonstrate knowledge and understanding of society's impact on the natural world (e.g., population growth, population development, resource consumption rate, etc.)	-
	Investigate and analyze environmental issues, and make accurate conclusions about effective solutions	-
	Take individual and collective action towards addressing environmental Challenges (e.g., participating in global actions, designing solutions that inspire action on environmental issues)	

Learning and Innovation Skills

Cluster	Indicator Statement	Addressed
Creativity and Innovation	Use a wide range of idea creation techniques (such as brainstorming)	•
	Create new and worthwhile ideas (both incremental and radical concepts)	•

	Elaborate, refine, analyze and evaluate their own ideas in order to improve and maximize creative efforts	-
	Develop, implement and communicate new ideas to others effectively	●
	Be open and responsive to new and diverse perspectives; incorporate group input and feedback into the work	-
	Demonstrate originality and inventiveness in work and understand the real world limits to adopting new ideas	
	View failure as an opportunity to learn; understand that creativity and innovation is a long-term, cyclical process of small successes and frequent mistakes	●
	Act on creative ideas to make a tangible and useful contribution to the field in which the innovation will occur	
Critical Thinking and Problem Solving	Use various types of reasoning (inductive, deductive, etc.) as appropriate to the situation	●
	Analyze how parts of a whole interact with each other to produce overall outcomes in complex systems	-
	Effectively analyze and evaluate evidence, arguments, claims and beliefs	
	Analyze and evaluate major alternative points of view	
	Synthesize and make connections between information and arguments	
	Interpret information and draw conclusions based on the best analysis	-
	Reflect critically on learning experiences and processes	-
	Solve different kinds of non-familiar problems in both conventional and innovative ways	●
Communication and Collaboration	Identify and ask significant questions that clarify various points of view and lead to better solutions	-
	Articulate thoughts and ideas effectively using oral, written and nonverbal communication skills in a variety of forms and contexts	●
	Listen effectively to decipher meaning, including knowledge, values, attitudes and intentions	●
	Use communication for a range of purposes (e.g. to inform, instruct, motivate and persuade)	
	Utilize multiple media and technologies, and know how to judge their effectiveness a priority as well as assess their impact	
	Communicate effectively in diverse environments (including multi-lingual)	-
	Demonstrate ability to work effectively and respectfully with diverse teams	●
	Exercise flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal	●
	Assume shared responsibility for collaborative work, and value the individual contributions made by each team member	●
Articulate thoughts and ideas effectively using oral, written and nonverbal communication skills in a variety of forms and contexts	●	

Information, Media and Technology Skills

Cluster	Indicator Statement	Addressed
Information Literacy	Access information efficiently (time) and effectively (sources)	
	Evaluate information critically and competently	
	Use information accurately and creatively for the issue or problem at hand	-
	Manage the flow of information from a wide variety of sources	
	Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information	
Media Literacy	Understand both how and why media messages are constructed, and for what purposes	
	Examine how individuals interpret messages differently, how values and points of view are included or excluded, and how media can influence beliefs and behaviors	
	Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of media	

	Understand and utilize the most appropriate media creation tools, characteristics and conventions	
	Understand and effectively utilize the most appropriate expressions and interpretations in diverse, multi-cultural environments	
ICT Literacy	Use technology as a tool to research, organize, evaluate and communicate information	
	Use digital technologies (computers, PDAs, media players, GPS, etc.), communication/networking tools and social networks appropriately to access, manage, integrate, evaluate and create information to successfully function in a knowledge economy	
	Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information technologies	

Life and Career Skills

Cluster	Indicator Statement	Addressed
Flexibility and Adaptability	Adapt to varied roles, jobs responsibilities, schedules and context	●
	Work effectively in a climate of ambiguity and changing priorities	-
	Incorporate feedback effectively	●
	Deal positively with praise, setbacks and criticism	●
	Understand, negotiate and balance diverse views and beliefs to reach workable solutions, particularly in multi-cultural environments	-
Initiative and Self-Direction	Set goals with tangible and intangible success criteria	
	Balance tactical (short-term) and strategic (long-term) goals	
	Utilize time and manage workload efficiently	-
	Monitor, define, prioritize and complete tasks without direct oversight	-
	Go beyond basic mastery of skills and/or curriculum to explore and expand one's own learning and opportunities to gain expertise	-
	Demonstrate initiative to advance skill levels towards a professional level	
	Demonstrate commitment to learning as a lifelong process	-
	Reflect critically on past experiences in order to inform future progress	-
Social and Cross-Cultural Skills	Know when it is appropriate to listen and when to speak	●
	Conduct themselves in a respectable, professional manner	●
	Respect cultural differences and work effectively with people from a range of social and cultural backgrounds	-
	Respond open-mindedly to different ideas and values	●
	Leverage social and cultural differences to create new ideas and increase both innovation and quality of work	
Productivity and Accountability	Set and meet goals, even in the face of obstacles and competing pressure	
	Prioritize, plan and manage work to achieve the intended result	-
	Demonstrate additional attributes associated with producing high quality products including the abilities to:	●
	<ul style="list-style-type: none"> - Work positively and ethically - Manage time and projects effectively - Multi-task - Participate actively, as well as be reliable and punctual 	
	<ul style="list-style-type: none"> - Present oneself professionally and with proper etiquette - Collaborate and cooperate effectively with teams - Respect and appreciate team diversity - Be accountable for results 	
Leadership and Responsibility	Use interpersonal and problem-solving skills to influence and guide others toward a goal	-
	Leverage strengths of others to accomplish a common goal	-
	Inspire others to reach their very best via example and selflessness	-
	Demonstrate integrity and ethical behavior in using influence and power	-
	Act responsibly with the interests of the larger community in mind	-

21st Century Skills Alignment

Student Outcomes



EXPLORE

Legend

•	The standard is clearly addressed by program activities.
-	This standard potentially could be addressed as part of FIRST® LEGO® League Explore either by actions that the coach or teacher takes when working with the students or by conditions established by the program.

Core Subjects

Cluster	Indicator Statement	Addressed
Global Awareness	Using 21st century skills to understand and address global issues	•
	Learning from and working collaboratively with individuals representing diverse cultures, religions and lifestyles in a spirit of mutual respect and open dialogue in personal, work and community contexts	•
	Understanding other nations and cultures, including the use of non-English languages	
Financial, economic, business and entrepreneurial literacy	Knowing how to make appropriate personal economic choices	
	Understanding the role of the economy in society	
	Using entrepreneurial skills to enhance workplace productivity and career options	
Civic literacy	Participating effectively in civic life through knowing how to stay informed and understanding governmental processes	
	Exercising the rights and obligations of citizenship at local, state, national and global levels	
	Understanding the local and global implications of civic decisions	
Health literacy	Obtaining, interpreting and understanding basic health information and services and using such information and services in ways that are health enhancing	-
	Understanding preventive physical and mental health measures, including proper diet, nutrition, exercise, risk avoidance and stress reduction	-
	Using available information to make appropriate health-related decisions	-
	Establishing and monitoring personal and family health goals	
	Understanding national and international public health and safety issues	-
Environmental literacy	Demonstrate knowledge and understanding of the environment and the circumstances and conditions affecting it, particularly as relates to air, climate, land, food, energy, water and ecosystems	-
	Demonstrate knowledge and understanding of society's impact on the natural world (e.g., population growth, population development, resource consumption rate, etc.)	-
	Investigate and analyze environmental issues, and make accurate conclusions about effective solutions	-
	Take individual and collective action towards addressing environmental Challenges (e.g., participating in global actions, designing solutions that inspire action on environmental issues)	

Learning and Innovation Skills

Cluster	Indicator Statement	Addressed
Creativity and Innovation	Use a wide range of idea creation techniques (such as brainstorming)	•
	Create new and worthwhile ideas (both incremental and radical concepts)	•
	Elaborate, refine, analyze and evaluate their own ideas in order to improve and maximize creative efforts	•

	Develop, implement and communicate new ideas to others effectively	●
	Be open and responsive to new and diverse perspectives; incorporate group input and feedback into the work	●
	Demonstrate originality and inventiveness in work and understand the real world limits to adopting new ideas	●
	View failure as an opportunity to learn; understand that creativity and innovation is a long-term, cyclical process of small successes and frequent mistakes	●
	Act on creative ideas to make a tangible and useful contribution to the field in which the innovation will occur	
Critical Thinking and Problem Solving	Use various types of reasoning (inductive, deductive, etc.) as appropriate to the situation	●
	Analyze how parts of a whole interact with each other to produce overall outcomes in complex systems	●
	Effectively analyze and evaluate evidence, arguments, claims and beliefs	●
	Analyze and evaluate major alternative points of view	●
	Synthesize and make connections between information and arguments	●
	Interpret information and draw conclusions based on the best analysis	●
	Reflect critically on learning experiences and processes	●
	Solve different kinds of non-familiar problems in both conventional and innovative ways	●
	Identify and ask significant questions that clarify various points of view and lead to better solutions	●
Communication and Collaboration	Articulate thoughts and ideas effectively using oral, written and nonverbal communication skills in a variety of forms and contexts	●
	Listen effectively to decipher meaning, including knowledge, values, attitudes and intentions	●
	Use communication for a range of purposes (e.g. to inform, instruct, motivate and persuade)	●
	Utilize multiple media and technologies, and know how to judge their effectiveness a priori as well as assess their impact	-
	Communicate effectively in diverse environments (including multi-lingual)	-
	Demonstrate ability to work effectively and respectfully with diverse teams	●
	Exercise flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal	●
	Assume shared responsibility for collaborative work, and value the individual contributions made by each team member	●
	Articulate thoughts and ideas effectively using oral, written and nonverbal communication skills in a variety of forms and contexts	●

Information, Media and Technology Skills

Cluster	Indicator Statement	Addressed
Information Literacy	Access information efficiently (time) and effectively (sources)	●
	Evaluate information critically and competently	-
	Use information accurately and creatively for the issue or problem at hand	●
	Manage the flow of information from a wide variety of sources	-
	Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information	
Media Literacy	Understand both how and why media messages are constructed, and for what purposes	
	Examine how individuals interpret messages differently, how values and points of view are included or excluded, and how media can influence beliefs and behaviors	
	Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of media	
	Understand and utilize the most appropriate media creation tools, characteristics and conventions	

	Understand and effectively utilize the most appropriate expressions and interpretations in diverse, multi-cultural environments	
ICT Literacy	Use technology as a tool to research, organize, evaluate and communicate information	●
	Use digital technologies (computers, PDAs, media players, GPS, etc.), communication/networking tools and social networks appropriately to access, manage, integrate, evaluate and create information to successfully function in a knowledge economy	-
	Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information technologies	

Life and Career Skills

Cluster	Indicator Statement	Addressed
Flexibility and Adaptability	Adapt to varied roles, jobs responsibilities, schedules and context	●
	Work effectively in a climate of ambiguity and changing priorities	●
	Incorporate feedback effectively	●
	Deal positively with praise, setbacks and criticism	●
	Understand, negotiate and balance diverse views and beliefs to reach workable solutions, particularly in multi-cultural environments	●
Initiative and Self-Direction	Set goals with tangible and intangible success criteria	-
	Balance tactical (short-term) and strategic (long-term) goals	-
	Utilize time and manage workload efficiently	●
	Monitor, define, prioritize and complete tasks without direct oversight	-
	Go beyond basic mastery of skills and/or curriculum to explore and expand one's own learning and opportunities to gain expertise	●
	Demonstrate initiative to advance skill levels towards a professional level	
	Demonstrate commitment to learning as a lifelong process	-
	Reflect critically on past experiences in order to inform future progress	-
Social and Cross-Cultural Skills	Know when it is appropriate to listen and when to speak	●
	Conduct themselves in a respectable, professional manner	●
	Respect cultural differences and work effectively with people from a range of social and cultural backgrounds	-
	Respond open-mindedly to different ideas and values	●
	Leverage social and cultural differences to create new ideas and increase both innovation and quality of work	
Productivity and Accountability	Set and meet goals, even in the face of obstacles and competing pressure	-
	Prioritize, plan and manage work to achieve the intended result	-
	Demonstrate additional attributes associated with producing high quality products including the abilities to:	●
	<ul style="list-style-type: none"> - Work positively and ethically - Manage time and projects effectively - Multi-task - Participate actively, as well as be reliable and punctual 	
	<ul style="list-style-type: none"> - Present oneself professionally and with proper etiquette - Collaborate and cooperate effectively with teams - Respect and appreciate team diversity - Be accountable for results 	
Leadership and Responsibility	Use interpersonal and problem-solving skills to influence and guide others toward a goal	●
	Leverage strengths of others to accomplish a common goal	●
	Inspire others to reach their very best via example and selflessness	●
	Demonstrate integrity and ethical behavior in using influence and power	●
	Act responsibly with the interests of the larger community in mind	●

21st Century Skills Alignment

Student Outcomes



CHALLENGE

Legend

•	The standard is clearly addressed by program activities.
-	This standard potentially could be addressed as part of FIRST® LEGO® League Challenge either by actions that the coach or teacher takes when working with the students or by conditions established by the program.

Core Subjects

Cluster	Indicator Statement	Addressed
Global Awareness	Using 21st century skills to understand and address global issues	•
	Learning from and working collaboratively with individuals representing diverse cultures, religions and lifestyles in a spirit of mutual respect and open dialogue in personal, work and community contexts	•
	Understanding other nations and cultures, including the use of non-English languages	-
Financial, economic, business and entrepreneurial literacy	Knowing how to make appropriate personal economic choices	-
	Understanding the role of the economy in society	-
	Using entrepreneurial skills to enhance workplace productivity and career options	-
Civic literacy	Participating effectively in civic life through knowing how to stay informed and understanding governmental processes	•
	Exercising the rights and obligations of citizenship at local, state, national and global levels	-
	Understanding the local and global implications of civic decisions	•
Health literacy	Obtaining, interpreting and understanding basic health information and services and using such information and services in ways that are health enhancing	-
	Understanding preventive physical and mental health measures, including proper diet, nutrition, exercise, risk avoidance and stress reduction	-
	Using available information to make appropriate health-related decisions	-
	Establishing and monitoring personal and family health goals	-
	Understanding national and international public health and safety issues	-
Environmental literacy	Demonstrate knowledge and understanding of the environment and the circumstances and conditions affecting it, particularly as relates to air, climate, land, food, energy, water and ecosystems	-
	Demonstrate knowledge and understanding of society's impact on the natural world (e.g., population growth, population development, resource consumption rate, etc.)	-
	Investigate and analyze environmental issues, and make accurate conclusions about effective solutions	-
	Take individual and collective action towards addressing environmental Challenges (e.g., participating in global actions, designing solutions that inspire action on environmental issues)	-

Learning and Innovation Skills

Cluster	Indicator Statement	Addressed
Creativity and Innovation	Use a wide range of idea creation techniques (such as brainstorming)	•
	Create new and worthwhile ideas (both incremental and radical concepts)	•
	Elaborate, refine, analyze and evaluate their own ideas in order to improve and maximize creative efforts	•

	Develop, implement and communicate new ideas to others effectively	●
	Be open and responsive to new and diverse perspectives; incorporate group input and feedback into the work	●
	Demonstrate originality and inventiveness in work and understand the real world limits to adopting new ideas	●
	View failure as an opportunity to learn; understand that creativity and innovation is a long-term, cyclical process of small successes and frequent mistakes	●
	Act on creative ideas to make a tangible and useful contribution to the field in which the innovation will occur	-
Critical Thinking and Problem Solving	Use various types of reasoning (inductive, deductive, etc.) as appropriate to the situation	●
	Analyze how parts of a whole interact with each other to produce overall outcomes in complex systems	●
	Effectively analyze and evaluate evidence, arguments, claims and beliefs	●
	Analyze and evaluate major alternative points of view	●
	Synthesize and make connections between information and arguments	●
	Interpret information and draw conclusions based on the best analysis	●
	Reflect critically on learning experiences and processes	●
	Solve different kinds of non-familiar problems in both conventional and innovative ways	●
	Identify and ask significant questions that clarify various points of view and lead to better solutions	●
Communication and Collaboration	Articulate thoughts and ideas effectively using oral, written and nonverbal communication skills in a variety of forms and contexts	●
	Listen effectively to decipher meaning, including knowledge, values, attitudes and intentions	●
	Use communication for a range of purposes (e.g. to inform, instruct, motivate and persuade)	●
	Utilize multiple media and technologies, and know how to judge their effectiveness a priority as well as assess their impact	-
	Communicate effectively in diverse environments (including multi-lingual)	-
	Demonstrate ability to work effectively and respectfully with diverse teams	●
	Exercise flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal	●
	Assume shared responsibility for collaborative work, and value the individual contributions made by each team member	●
	Articulate thoughts and ideas effectively using oral, written and nonverbal communication skills in a variety of forms and contexts	●

Information, Media and Technology Skills

Cluster	Indicator Statement	Addressed
Information Literacy	Access information efficiently (time) and effectively (sources)	●
	Evaluate information critically and competently	●
	Use information accurately and creatively for the issue or problem at hand	●
	Manage the flow of information from a wide variety of sources	●
	Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information	-
Media Literacy	Understand both how and why media messages are constructed, and for what purposes	-
	Examine how individuals interpret messages differently, how values and points of view are included or excluded, and how media can influence beliefs and behaviors	-
	Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of media	-
	Understand and utilize the most appropriate media creation tools, characteristics and conventions	-
	Understand and effectively utilize the most appropriate expressions and interpretations in diverse, multi-cultural environments	-

ICT Literacy	Use technology as a tool to research, organize, evaluate and communicate information	●
	Use digital technologies (computers, PDAs, media players, GPS, etc.), communication/networking tools and social networks appropriately to access, manage, integrate, evaluate and create information to successfully function in a knowledge economy	-
	Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information technologies	-

Life and Career Skills

Cluster	Indicator Statement	Addressed
Flexibility and Adaptability	Adapt to varied roles, jobs responsibilities, schedules and context	●
	Work effectively in a climate of ambiguity and changing priorities	●
	Incorporate feedback effectively	●
	Deal positively with praise, setbacks and criticism	●
	Understand, negotiate and balance diverse views and beliefs to reach workable solutions, particularly in multi-cultural environments	●
Initiative and Self-Direction	Set goals with tangible and intangible success criteria	●
	Balance tactical (short-term) and strategic (long-term) goals	●
	Utilize time and manage workload efficiently	●
	Monitor, define, prioritize and complete tasks without direct oversight	●
	Go beyond basic mastery of skills and/or curriculum to explore and expand one's own learning and opportunities to gain expertise	●
	Demonstrate initiative to advance skill levels towards a professional level	-
	Demonstrate commitment to learning as a lifelong process	●
	Reflect critically on past experiences in order to inform future progress	●
Social and Cross-Cultural Skills	Know when it is appropriate to listen and when to speak	●
	Conduct themselves in a respectable, professional manner	●
	Respect cultural differences and work effectively with people from a range of social and cultural backgrounds	●
	Respond open-mindedly to different ideas and values	●
	Leverage social and cultural differences to create new ideas and increase both innovation and quality of work	●
Productivity and Accountability	Set and meet goals, even in the face of obstacles and competing pressure	●
	Prioritize, plan and manage work to achieve the intended result	●
	Demonstrate additional attributes associated with producing high quality products including the abilities to:	●
	- Work positively and ethically	
- Manage time and projects effectively	- Collaborate and cooperate effectively with teams	
- Multi-task	- Respect and appreciate team diversity	
- Participate actively, as well as be reliable and punctual	- Be accountable for results	
Leadership and Responsibility	Use interpersonal and problem-solving skills to influence and guide others toward a goal	●
	Leverage strengths of others to accomplish a common goal	●
	Inspire others to reach their very best via example and selflessness	●
	Demonstrate integrity and ethical behavior in using influence and power	●
	Act responsibly with the interests of the larger community in mind	●