Pathway Essentials

Pathway Essentials is the core knowledge and skills for life and work that underpin the Bradford Pathways approach and are integral to the framework of careers and technical education. They are essential in terms of the knowledge and skills that will become transferable in a young person by the constant use and practice of them. Preparing young people for the many roles they will hold in their life; citizens, workers, parents and consumers, giving them the ability to apply their knowledge and skills effectively to rapidly changing situations.

The need for core knowledge and skills is recognised by businesses, politicians and educational leaders who would like to see students have the opportunity through their compulsory schooling; to learn and develop the competencies they will need to enter the ever-changing world of work and life. We can and must prepare all students with a 21st century education that will position them with the knowledge and skills they need to thrive, whether they continue their formal education or enter the workforce after secondary school.

All students need a more robust education and Pathway Essentials focuses on teaching students to become critical thinkers, problem solvers and innovators; effective communicators and collaborators; and self-directed learners. This approach responds to the demand for citizens who are globally aware, civically engaged, and capable of managing their lives and careers, and are economically and financially literate and fluent in information, media and technology skills.

For students, the skills, knowledge and expertise they should master to succeed in post-secondary education, work and life, should be the outcome of a 21st century education that enables them to master core subjects, themes and 21st century skills.

To help students achieve this, teachers need education support systems that strengthen their instructional, leader- ship and management capacity and both students and educators need learning environments that are conducive to results. Many students need additional preparation to handle the increasingly higher expectations of postsecondary education, employment or civic responsibility. Employers want prospective workers to acquire at least some level of industry-specific technical skills, before they enter the workforce.

The current focus for student readiness is primarily on academic knowledge and not yet on the combined academic skills, employability and technical knowledge and skills that are equally valued in a creative, innovative society. Many students do not have the skills they need to succeed beyond secondary school, or they might be so disengaged in learning that they drop out of school. Integrating 21st century skills and career and technical education into the entire education system will put more students on the path to success.

How students learn has a decided impact on what they learn, teaching and learning environments really do matter. Many students learn more when schoolwork is connected to their interests, to real-world problems, and to the world of work.

Experiences outside the classroom, variation in the school day, and the ability to use technology and other hands-on tools engage students in learning and help them discover new interests and passions. Instructional strategies that foster higher-order thinking and personalise learning to meet students' specific needs are critical as well.

Combined Skill Sets with Lasting Value

Academic Skills • Employability Skills • Technical Skills

Students need to be inspired to learn; engaging many students, especially secondary school students, can be more difficult today. Educators have to compete with the distractions that appeal to students in modern life. Twenty-first century skills, themes and Bradford Pathway programmes offer their own magnetism; relevant, real-world content and contexts that foster curiosity, creative problem solving and intellectual risk taking.

Confining education to traditional classrooms severely constrains both the opportunities and time for learning. Bradford Pathways encourages student motivation, positive behaviour, collaboration and learning by bringing the world of careers into the classroom, and by getting students out of the classroom to learn. In Bradford Pathway programmes, students can learn as adults in the workplace, in laboratories, in their chosen field and in their communities.

A 21st century learning environment is not only a place and space, but also about the relationships that are forged that support every student's development. Learning environments are the structures, tools and communities that inspire both students and educators to master the knowledge and skills demanded in the world today.

Educational programmes and curricula must meet increasing and ever-changing knowledge and skills demands. Developed with employer and post-secondary input, Bradford Pathway programmes will teach academic, technical and employability skills that progress in difficulty as students advance through their coursework. Bradford Pathway programmes and educators need to be attuned to industry and regional needs, revising curricula often and creating new programmes to reflect state-of-the-art practices and prepare students for emerging careers.

Bradford Pathway educators (all our partners and stakeholders) need to understand that students deepen their learning by connecting new knowledge to what they already know, by practicing their skills, by putting their knowledge and skills to meaningful use, by working in cooperative teams, by observing and collaborating with experts, and by getting personalised feedback and direction.

Schoolwork should mirror learning and work in the real world. Bradford Pathways Framework and the Pathway Essentials provide relevant content, contexts and higher-order thinking skills necessary for interdisciplinary learning and collaboration. Bradford Pathway learning programmes will require students to bring together their knowledge and skills from many content areas to think through problems and accomplish their work, often achieved by working with other skilled people.

Bradford Pathway learning programmes can be bespoke by design, and in addition, students will get individual attention, focused on their needs and interests which will be recorded on the individual learning plan (ILP). Within career sectors and pathways, they will have ample opportunities to explore their interests and passions in customised work-based learning experiences. This doesn't mean that students are locked into a specific academic or other career pathway; students will be able to change their minds or go in a different direction. The knowledge and skills they acquire through the Pathway Essentials are portable and relevant to all career fields.

Professional growth is critical for teachers and educators to support 21st century readiness. Training organisations, businesses, employers and industry experts in all Bradford Pathway career fields; support teachers and educators with professional development and learning consistently, making them highly

connected 'teachers and educators' and forms everyday pedagogical practices.

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Making effective use of technology to support teaching and learning is essential in the modern world. The Framework for 21st Century learning recognises that technology proficiency is both a means to learn, and a valuable skill, in its own right. Students should use or have access to the same kinds of technology and equipment that is common in their career fields, giving them expertise and competencies for transitioning to post sixteen education and workplaces.

The 21st century skills, including academic, technical and employability skills that students need for post sixteen education and career readiness, are not often measured, or even measurable by formative or summative assessments. Therefore, balanced assessments should be advocated, multiple measures of performance and new assessments of student progress toward 21st century skills proficiency. Performance-based assessments will be developed and regularly updated in collaboration with employers and aligned with industry standards and competencies. Both classroom and end-of-course assessments, will require students to apply their learning to real, career-focused problems.

Close partnerships with employers and higher education, for both students and teachers will be developed. Job shadowing, internships, apprenticeships, mentoring and other work-based experiences will foster strong relationships among employers, secondary and postsecondary educators, and students. These relationships and experiences will keep educators at the top of their game in terms of postsecondary and industry demands, and give students extra layers of support in pursuing their dreams.

Pathway Essentials is a blend of content knowledge, specific skills, expertise and literacies that can be embedded throughout the curriculum and is categorised thematically:

Content - Core and Foundation Subjects include:

English	**Geography**	**Music**
Maths	**Modern Foreign Languages**	**Physical Education**
Science	**Design and Technology**	**Citizenship**
History	**Art and Design**	**Computing**

Contexts for Learning

Global Awareness

- Using pathway essentials to understand and address global issues
- Learning from and working collaboratively with individuals representing diverse cultures, religions and lifestyle in a spirit of mutual respect and open dialogue in personal, work 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 and 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, regional, 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 enhance health
- 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
- Demonstrates knowledge and understanding of society's impact on the natural world (e.g., population growth, population development, resource consumption rate, etc.
- Investigate and analyse environmental issues and make accurate conclusions about effective solution
- 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

Learning and innovation skills increasingly are recognised as those that divide students who are prepared for a more and more complex life and work environments in the 21st Century from those who are not. Focus on creativity, critical thinking, communication and collaboration is essential to prepare students for the future.

Creativity and Innovation

Think Creatively

- Use a wide range of idea creation techniques i.e. brainstorming
- Create new and worthwhile ideas, (incremental and radical concept)
- Elaborate, define, analyse and evaluate their own ideas in order to improve and maximise creative efforts.

Work Creatively with Others

- Develop, implement and communicate new ideas to others effectively
- The open and responsive to new and diverse perspectives: corporate 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 long-term, cyclical process of small successes and frequent mistakes.

Implement Innovations

- 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

Reason Effectively

- Use various types of reasoning (inductive, deductive, etc.) as appropriate to the situation

Use Systems Thinking

- Analyse how parts of a whole interact with each other to produce overall outcomes in complex systems

Make Judgments and Decisions

- Effectively analyse and evaluate evidence, arguments, claims and beliefs
- Analyse 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

SolveProblems

- 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

Communicate Clearly

- 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)
- Utilise 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)

Collaborate with Others

- 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

Information, Media and Technology Skills

People in the 21st century live in a technology and media-driven environment, marked by various characteristics, including: 1) Access to an abundance of information, 2) Rapid changes in technology tools, and 3) The ability to collaborate and make individual contributions on an unprecedented scale. Effective citizens and workers of the 21st century must be able to exhibit a range of functional and critical thinking skills related to information, media and technology.

Information Literacy

Access and Evaluate Information

- Access information efficiently (time) and effectively (sources)
- Evaluate information critically and competently

Use and Manage Information

- 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

Analyse Media

- Understand, 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 behaviours
- Apply a fundamental understanding of the ethical and legal issues surrounding the access and use of media

Create Media Products

- 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 (Information, Communications and Technology) Literacy

Apply Technology Effectively

- 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

Today's life and work environments require far more than thinking skills and content knowledge. The ability to navigate the complex life and work environments in the globally competitive information age requires students to pay rigorous attention to developing adequate life and career skills.

Flexibility and Adaptability

Adapt to Change

- Adapt to varied roles, jobs responsibilities, schedules and contexts
- Work effectively in a climate of ambiguity and changing priorities

Be Flexible

- 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

Manage Goals and Time

- Set goals with tangible and intangible success criteria
- Balance tactical (short-term) and strategic (long-term) goals
- Utilise time and manage workload efficiently

Work Independently

- Monitor, define, prioritize and complete tasks without direct oversight

Be Self-directed Learners

- 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

Interact Effectively with Others

- Know when it is appropriate to listen and when to speak Conduct themselves in a respectable, professional manner

Work Effectively in Diverse Teams

- 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

Manage Projects

- Set and meet goals, even in the face of obstacles and competing pressures
- Prioritise, plan and manage work to achieve the intended result

Produce Results

Demonstrate additional attributes associated with producing high quality products including the abilities to:

- Work positively and ethically
- Manage time and projects effectively
- Multi-task
- Participate actively, as well as be reliable and punctual
- Present oneself professionally and with proper etiquette
- Collaborate and cooperate effectively with teams
- Respect and appreciate team diversity
- Be accountable for results

Leadership andResponsibility

Guide and Lead Others

- 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 behaviour in using influence and power

Be Responsible to Others

- Act responsibly with the interests of the larger community in mind

Pathways Essentials - Support Systems

The elements described below are the critical systems necessary to ensure student mastery of 21st century skills. 21st century standards, assessments, curriculum, instruction, professional development and learning environments must be aligned to produce a support system that produces 21st century outcomes for today's students.

21st Century Standards

- Focus on 21st century skills, content knowledge and expertise
- Build understanding across and among key subjects as well as 21st century interdisciplinary themes
- Emphasise deep understanding rather than shallow knowledge
- Engage students with the real-world data, tools and experts they will encounter in college, on the job, and in life; students learn best when actively engaged in solving meaningful problems
- Allow for multiple measures of mastery

Assessment of 21st Century Skills

- Supports a balance of assessments, including high-quality standardised testing along with effective formative and summative classroom assessments
- Emphasises useful feedback on student performance that is embedded into everyday learning
- Requires a balance of technology-enhanced, formative and summative assessments that measure student mastery of 21st century skills
- Enables development of portfolios of student work that demonstrate mastery of 21st century skills to educators and prospective employers
- Enables a balanced portfolio of measures to assess the educational system's effectiveness in reaching high levels of student competency in 21st century skills

21st Century Curriculum and Instruction

- Teaches 21st century skills discretely in the context of key subjects and 21st century interdisciplinary themes
- Focuses on providing opportunities for applying 21st century skills across content areas and for a competency-based approach to learning
- Enables innovative learning methods that integrate the use of supportive technologies, inquiry- and problem-based approaches and higher order thinking skills
- Encourages the integration of community resources beyond school walls

21stCenturyProfessionalDevelopment

- Highlights ways teachers can seize opportunities for integrating 21st century skills, tools and teaching strategies into their classroom practice — and help them identify what activities they can replace/de-emphasise
- Balances direct instruction with project-oriented teaching methods
- Illustrates how a deeper understanding of subject matter can enhance problem-solving, critical thinking, and other 21st century skills
- Enables 21st century professional learning communities for teachers that model the kinds of classroom learning that best promotes 21st century skills for students
- Cultivates teachers' ability to identify students' particular learning styles, intelligences, strengths and weaknesses
- Helps teachers develop their abilities to use various strategies, such as formative assessments to reach diverse students and create environments that support differentiated teaching and learning
- Supports the continuous evaluation of students' 21st century skills development
- Encourages knowledge sharing among communities of practitioners, using face-to-face, virtual and blended communications
- Uses a scalable and sustainable model of professional development

21st Century Learning Environments

- Create learning practices, human support and physical environments that will support the teaching and learning of 21st century skill outcomes
- Support professional learning communities that enable educators to collaborate, share best practices and integrate 21st century skills into classroom practice
- Enable students to learn in relevant, real world 21st century contexts (e.g., through project-based or other applied work)
- Allow equitable access to quality learning tools, technologies and resources

- Provide 21st century architectural and interior designs for group, team and individual learning
- Support expanded community and international involvement in learning, both face-to-face and online.