Imagining

IMAGINE HIGH

Education is a process of living and not a preparation for future living.

John Dewey

Imagine High

INTEGRATED ARTS & TECHNOLOGY SECONDARY

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Chilliwack School District

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Imagine High

INTEGRATED ARTS & TECHNOLOGY SECONDARY

Sincere thanks to school district staff, community partners and educator colleagues across British Columbia for sharing their insights, suggestions and innovative practices. We so appreciate the gift of time and inspiration through conversations about what school could be.

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Brooke Haller is the principal of Imagine High Integrated Arts and Technology School. In her fifteen years as an educator in BC she has worked in a variety of roles in K-12 public education: classroom teacher, District Technology Collaboration Teacher, District Network Leader (Connected Classrooms/Shared Learning/Deep Learning) and Principal.

Brooke is committed to nurturing an integrated instructional approach by supporting teachers to build deep, authentic learning experiences that mirror the work of the real world. She currently lives in Hope and spends her off time wandering the backroads and wilds of BC with her camera searching for waterfalls, ferns and moss.

Janet Carroll has had a long and varied career in both K - 12 public education as a classroom teacher, counsellor, school principal and district administrator, and at the post-secondary level in teacher education. Aside from teaching, her passions include visual arts, community theatre, travel, writing, reading and being close to nature with her dogs, Bella and Koda.

Janet believes strongly in the role that the integration of arts and technology can play in connecting students to their interests and passions, and in developing their creative capacity. When not working, Janet can be found at her kitchen island painting, out in the woods with her dogs, or deciding on her next travel destination.

SUMMARY

Deep learning is more natural to the human condition because it more clearly connects with our core motivations: to directly and deeply engage in learning; and to do things that truly make a difference to our lives and to the world. In the best examples, teachers and students are teaming up to make learning irresistibly engaging, and steeped in real-life problem-solving.

(Fullan, 2014, p.10)

Imagine High Integrated Arts and Technology Secondary opens for students in September 2021. A school of choice within the Chilliwack School District, Imagine High will be unique, innovative and substantially different from traditional secondary schools. Using a socio-constructivist pedagogical approach to teaching and learning, and grounded in community and equity practices, we will position our students as co-constructors of knowledge, creatives and change agents.

This paper explores deep learning and supporting pedagogies, as well as the current research in the integration of arts and technology, and shares understandings that will build the foundation and core values of the school community.

It describes how the redesigned British Columbia curriculum, supported by the four pillars of Integrated Arts & Technology, can be a catalyst for change and innovation at Imagine High. Our vision for the new school is strengthened and animated by educators in schools across the province and around the world who are conceptualizing deep learning in ways that challenge school design in the 21st Century. We seek to create an experiential, connected learning environment that leads students to create meaningful, relevant and beautiful work. By linking research, theory and practice, we imagine what school could, and should, be in a changing world.

This submission serves as a foundational document that will support and guide our decisions as we work collaboratively with the evolving Imagine High community to build a collective vision that will foster and sustain student success.

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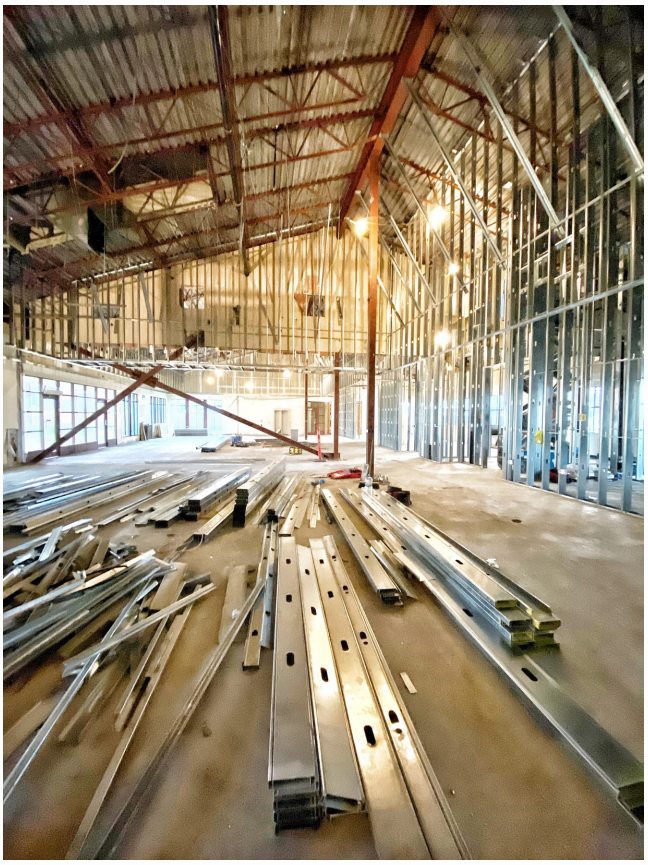


Imagine High Under Construction Fall 2020

INTRODUCTION AND CONTEXT

The Chilliwack School District provides 14,000 full and part time students of our community with outstanding learning opportunities through diverse programming at the elementary, middle and secondary levels.

In September 2021, Imagine High Integrated Arts and Technology Secondary will open on the site of the former University of the Fraser Valley on Yale Road in Chilliwack. We are appreciative that the school is situated on the ancestral and unceded, shared territory of the Ts'elxwéyeqw and Pilalt Tribes, both part of the larger Stó:lō Nation. Our neighbours, Squiala First Nation, have their own unique cultural identity. We are honoured to live, learn, work and play on this land.

Imagine High is a public school of choice for students in grades 9 - 12 who are passionate about or have a strong interest in learning through arts and technology integration. With the potential to house up to 700 students, Imagine High will boast music, dance and art studios, a high-end theatre, culinary arts spaces, cutting edge technologies and a brand-new gymnasium to enhance student learning. Aside from the outstanding facility and learning resources, the school will offer an approach to teaching and learning that reflects current research in the areas of constructivist pedagogies, 21st Century learning environments, and the integration of arts and technology.

Imagine High 2021 - 2024

Year	Grade 9	Grade 10	Grade 11	Grade 12
2021/22	✓	✓		
2022/23	✓	✓	✓	
2023/24	✓	✓	✓	✓

When Imagine High opens in 2021, integrated arts and technology programming of choice will be offered at three school sites in Chilliwack:

- FG Leary Fine Arts Elementary (K - 5)
- AD Rundle Middle School (6 - 8 Integrated Arts & Technology Cohort)
- Imagine High Integrated Arts and Technology Secondary School (9 - 12)

Imagine High
Under Construction
Fall 2020

Students who successfully meet the graduation requirements at Imagine High will be eligible to graduate with a Dogwood Diploma.

Graduates will be distinguished by their creativity and imagination, ability to collaborate, think critically and innovate for a hopeful future.

VISION

Imagine High Integrated Arts and Technology Secondary is an innovative and vibrant school community, fostering and celebrating creativity, where students find meaning and contribute to the community within our school and beyond.

Our vision for Imagine High reflects the SD33 Strategic Plan with its focus on "every student becoming a graduate prepared for opportunities beyond graduation." The Strategic Plan outlines four priorities that will guide the implementation of our vision:

- Improving student achievement and well-being through high quality instruction
- Strengthening meaningful relationships within and across schools, district and community to support success for students
- Enhancing the culture, climate and learning environment to promote a sense of belonging, diversity, well-being and safety
- Aligning and allocating resources equitably, responsibly and effectively to support goals and key initiatives

Student success, engagement, well-being and learning are at the core of our vision. Our goal is that Imagine High will be a laboratory for innovative practices in the area of curriculum integration at the secondary level, a learning environment in which multiple pathways are available for students' personal exploration, expression and inquiry. We will work collectively as a school to ensure that all students thrive, find meaning and success, and are prepared for life beyond graduation.

We see our vision statement as a place holder until we can engage in meaningful dialogue with students, staff, parents and the community. As we grow our Imagine High learning community, our vision will evolve and shift to reflect the larger Imagine family.

LEARNING THROUGH THE LENS OF EQUITY, INCLUSION AND DIVERSITY

The plain fact is that the planet does not need more successful people. But it does desperately need more peacemakers, healers, restorers, storytellers, and lovers of every kind. It needs people who live well in their places. It needs people of moral courage willing to join the fight to make the world habitable and humane. And these qualities have little to do with success as we have defined it.
(Orr, 1991, p. 54)

How we live, work, play and learn has been dramatically transformed over the past 20 years. The learners of today are living in dynamic and formidable times; complex challenges are testing how humanity will be able to work together to address critical challenges. Rittel and Webber coined the term "wicked problems" in 1973 to describe complex issues such as climate change, poverty, conflict, and racial inequality as challenges that do not lend themselves to simple solutions and will continue to demand creative, innovative, and collaborative approaches to solve (Rittel & Webber, 1973).

Students today need to be more than successful and knowledgeable - success and knowledge without a moral imperative will be inadequate to solve the critical problems that face the next generation.

A quality lifelong inclusive and equitable education, formal and informal, physical and digital, will be vital in preparing our populations and society to thrive in this uncertain future (OECD, 2018). The 20th century model of education that "inculcates standardized facts and procedures designed to output a workforce for jobs that no longer exist will be insufficient to meet the challenges ahead" (Hargreaves, 2003).

At Imagine High, compassion, empathy and human-centered learning anchor everything we do. We want to help our learners see the connections between the world of school and the world of work, inspire them to improve the human condition as engaged and compassionate citizens, and understand that knowledge depends on compassion to be ethical. Our overarching purpose is to guide our students to develop innovative ideas, creative approaches and meaningful relationships critical for their success in a complex and changing world. Our goal is to create a school based on principles of equity and justice where all members of the school community recognize their roles as contributors, and students have the support they need to develop their own identity, empathize with others to consider diverse perspectives and are able to navigate a path to agency and efficacy (Hollins & Govan, 2015).

We believe that decolonization, reconciliation, inclusion and diversity are the foundation on which to build the Imagine High community and culture.

We want our learners to embody the competencies embedded within the redesigned curriculum: learners that value diversity, advocate for social justice, interact ethically with others, act to defend human rights and are able to identify how diversity is beneficial to the communities to which they belong. Specifically, we want our students to develop the skills of understanding, tolerance, friendship, peace and, most importantly, the confidence to make the world a better place (BC Ministry of Education, 2020). As our schools and communities have become increasingly diverse, the divisions that separate the advantaged from the disadvantaged have become more apparent (BC Ministry of Education, 2008). Not everyone does well in our educational institutions and not everyone is equally advantaged in our communities.

Creating Space for Decolonization & Reconciliation

A key goal will be to work collectively as a school to honour the *94 Calls to Action* within the Truth and Reconciliation Commission of Canada and commit to respect, understand and value Indigenous histories, cultures and perspectives, and meaningfully integrate these worldviews into the classroom (Truth and Reconciliation Commission of Canada, 2015; BC Teachers' Council Professional Standards for BC Educators, 2019; Davidson & Davidson, 2018). Among these principles is the acknowledgement that learning is holistic, reflective, experiential and relational (FNESC, 2008; OECD, 2013). We need to do more than add content about the histories of Indigenous peoples, including unlearning the assumptions and preconceptions that negatively impact our students. We commit to embracing pedagogies that promote equity and inclusion for all learners. Our goal is to create space for decolonization through Indigenous voices, presence and pedagogies (Ermine, 2006). These spaces create new stories and relationships that can guide the development of our heart, mind, body and spirit (Archibald, 2010).

Inclusion - Meeting the Needs of Every Learner

Creating equity and access requires adaptive ability and purposeful collaboration among educators. All children can and do learn. It is important for teachers to understand how to become change agents to create more inclusive schools (Brownlie, Feniak & Schnellert, 2006). All students are capable contributors in their communities; we know that diversity is a strength but, if we are to truly move inclusive education forward in our schools, we need to support inclusion with both mindsets and planning practices. Educators at Imagine High will create access points for all learners through collaboration, strengths-based planning frameworks for differentiation, and universal/backwards design.

Inclusion is not a strategy to help people fit into the systems and structures that exist in our societies; it is about transforming those systems and structures to make a place for all our learners (Inclusion BC, 2017).

We want to build a learning community with an awareness, understanding and acceptance of the diversity that exists within our society - differences that are visible (e.g., race, ethnicity, sex, age, physical ability) and differences that may be less visible (e.g., culture, ancestry, language, religious beliefs, sexual orientation, gender identity, socioeconomic background, mental ability). We will advocate for social justice for all people and groups, ensuring that a student's background or circumstances do not prevent them from achieving the full benefits of participation in school and society, and address historical and current injustices that have, and continue to, marginalize, ignore, discriminate or oppress members of our school community (Ryan, 2008).

School cultures must promote belongingness and safety for the increasingly diverse student body that enters our school doors. Hargreaves stresses that, in our rapidly changing world, "complexities, confusions and conflicts will diminish us or do us in if we do not enlarge our capacity of teaching and learning" (Hargreaves, 2003). If the goal is to support the development of citizens who value integrity, respect, responsibility, compassion and hard work, we need to build school cultures that model those attributes (Berger, 2003).

LEARNING PEDAGOGY AT IMAGINE HIGH

Deep learning is quality learning that 'sticks' with you for the rest of your life; it increases student engagement through personalization and ownership; it connects students to the 'real world'; it resonates with spiritual values; it builds skills, knowledge, self-confidence, and self-efficacy; it builds new relationships with and between the learner, their teachers, families and communities; and it deepens the human desire to connect with others to do good. (Ferlazzo, 2018: Fullan Interview)

A changing world demands a shift away from the 19th Century industrial model of education that informs many of the structures and approaches that characterize current schooling. At Imagine High we will approach learning through a **socio-constructivist** lens that represents a shift from the passive transfer and consumption of knowledge to the development of individual potential by enabling learning processes that are co-constructed, situated in real life contexts, open-ended and collaborative (Rhinow, Noweski, & Meinel, 2012). In the constructivist approach, students work together to discover and apply knowledge to solve real world problems (Loepp, 2020).

Social constructivism is a sociological theory of knowledge in which human development is socially situated and knowledge is constructed through interaction with others. Dewey(1938) and Piaget(1970) contributed to early education and learning theory by considering how knowledge and meaning are created through shared experience and interaction. Rather than an individual or solitary process, community creates the "social fabric of learning" (Wenger, 1996), and learning occurs through social interaction with the collaborative support of both the people and the environment in which the learner is situated (Vygotsky, 1978).

At its very core, learning is a social phenomenon that reflects our own deeply social nature as human beings capable of knowing (Wenger, 1996).

At Imagine High, our aim is to build a learning community that is holistic, reflexive, reflective, experiential and relational; we want learning to be anchored in connectedness, reciprocal relationships and a sense of place (FNESC, 2008). Community based learning encompasses the physical spaces we are rooted in, as well as the social and cultural roots connected to place. Learning that is rooted in community offers problem solvers of all stripes a chance to design within community, to deeply understand the people they serve, to freely imagine and ideate, and to create innovative solutions that reflect people's actual needs (IDEO, 2015). We believe students and teachers will find deeper meaning, relevance and engagement through the co-construction of knowledge.

Authentic Intellectual Work - Knowledge Construction Through Disciplined Inquiry

When schools organize learning around experiences that demand higher order thinking, and in-depth understanding, collaboration and connection to students' lives beyond school, students produce increasingly complex work.

Newman, Bryk and Nagaoka (2001) conceptualize **authentic intellectual work** as involving the application of knowledge and skills rather than just the routine use of facts and procedures; it also entails disciplined inquiry into the details of a particular problem and results in a product or presentation that has meaning beyond success in school.

Teaching and learning practices, focused around the construction of knowledge through the use of disciplined inquiry, produce discourse, products or performances that have intrinsic value for students. Inquiry-based learning aspires to engage students in an authentic discovery process; students pose questions and are supported by teachers and a rigorous inquiry framework to explore multiple solutions and learning paths to make learning personal.

We want to nurture product-oriented learning that supports learners to develop empathetic perspectives and the necessary skills to learn about other people's conditions and needs. These practices calibrate a learner's resilience and perseverance, promote an understanding of the importance of discipline and commitment, and create the conditions for creativity, innovation and growth (Zhao, 2012).

Product Based Learning

Generally, **project-based learning** (PBL) focuses on the development of interdisciplinary learning centered around interconnected problems and the creation of artifacts of learning. While PBL has many applications and interpretations, we look to a deeper application of PBL practices in the form of **product-based learning.** As described by Zhao and realized by the work of High Tech High, product-based learning reflects a shift in focus to "students designing, planning, and carrying out an extended project that produces a publicly-exhibited output such as a product, publication, or presentation exhibition that changes the orientation of learners from recipients and consumers to creators and providers" (Zhao, 2012). Learning experiences are designed to ensure both high-quality products and sustained, deep learning. Product-based learning thrives in a collaborative culture that values relationships, empathetic human design processes, authentic audience, on-going learning dialogues between and among teachers, learners and community experts, and the manifestation of student learning that is visible, transparent and inspires further learning conversations.

Design Thinking

As with PBL, there is a multiplicity of iterations and definitions of **design thinking**. We conceptualize design thinking as both a creative process and a mindset. For example, students might tackle a question like "How might we identify and address a real problem or need in our community?". The process is intellectually demanding and involves five stages: empathy (understanding how the problem or situation impacts real people); problem definition (refining the problem through discussion, research, interviews); ideation (considering and interacting with multiple ways to address the problem); prototyping (creating artifacts that visualize a solution); and testing (evaluating the impact of the solution on real people). Design thinking is iterative, rooted in empathy and fosters personal agency, experimentation, creativity and collaboration: "The process allows students to build deep empathy with the community; only by listening, thinking, building, and refining our way to an answer do we arrive at solution(s) that will work for the people we serve" (IDEO, 2015).

Also called human-centered design, the starting point for this type of inquiry is uncertainty, a place of not knowing what the solution to a given design challenge might be, and a deep desire to engage with and find solutions for real life problems.

Educational approaches that permeate the boundaries between school and community engage educators and students in authentic work that is grounded in real-world contexts and demands real world solutions (Fehrenbacher & Scherer, 2017). Teachers will be supported to embrace practices to engage all students from the start, facilitate mastery of core academic content and important skills tied to deeper learning, integrate school with the community, showcase products and processes to authentic audiences beyond individual teachers, and engage in meaningful assessment and reflection.

Authentic Assessments

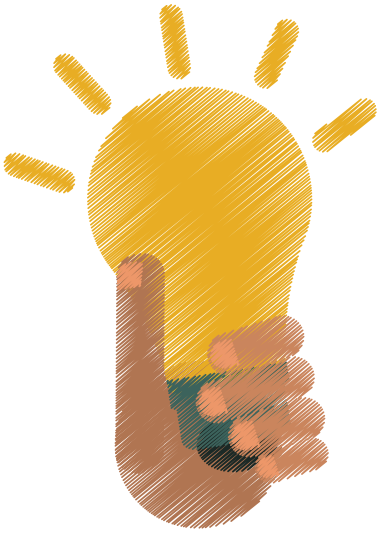
We believe that learning is continuous, complex and holistic; the processes involved with authentic intellectual work are best supported by assessment practices that develop the capacity of learners to be co-creators and leaders of their own learning. **Student-engaged assessment** shifts the primary role of assessment from summative evaluation and ranking that is external to the learner, to practices that promote a deep sense of independence, accountability and ownership (Berger, 2014). Assessment **for** learning (formative assessment) is dialogical in nature and helps students to become active co-planners of their own learning, while assessment **as** learning (self-assessment) promotes the development of metacognition and self-regulation. Berger (2014), Wiliam (2011) and Hattie (2015) all point to effective and continuous feedback as a powerful and integral component of formative assessment critical to student success. Our goal is to support teachers in building a culture that promotes and values feedback that is meaningful, clear and timely, and allows students to learn from "mistakes" (Hattie & Timperley, 2007). Assessment **of** learning (summative assessment) will center around the creation, presentation and exhibition of learning artifacts that are the result of self-critique and feedback from peers and teachers. Learning artifacts can take many forms and are only limited by student imagination.

Teachers who use researched assessment practices - as, for and of learning - guide student learning and inform instruction in deep and powerful ways. Meaningful assessment practices allow teachers to calibrate and individualize instruction, deepen student learning, foster the reflective capacities of students and make learning visible.

Grade 6 - 8 Arts and Technology Cohort (future Imagine High students)

INNOVATIVE LEARNING ENVIRONMENTS - INSPIRATION FOR IMAGINE HIGH

Design Thinking, product-based learning and authentic assessment are examples of pedagogical approaches that fuel innovative learning environments, practices explored within Fullan's Deep Learning Framework; he describes the innovative learning environment as one that encourages teamwork, creates the conditions for risk taking and motivates students to keep learning (Fullan, 2013). As well, we look to the First Peoples Principles of Learning and the OECD's seven key features of innovative learning environments as touchstone documents as we conceptualize how to implement current theories of school reform and innovation at Imagine High. All three frameworks speak to learning that is collaborative, authentic, personalized and student-centered.



Innovative learning environments positively impact student achievement, confidence, resilience, motivation, engagement and thinking skills; even school attendance is positively impacted.
(Davies, et al, 2012)

As we begin our Imagine journey, we are inspired by schools and educators across the province and around the world who are re-imagining schooling by designing learning environments that foster deep learning that is "irresistibly engaging, elegantly efficient, technologically ubiquitous, steeped in real life problem solving" (Fullan, 2020). Many of the schools in the following examples have tossed out some of the structural features we readily associate with school, in general, and secondary schools specifically. As Sir Ken Robinson (2015) observes: "Many of the conventional rituals of schooling are not fixed in law. Many schools are organized as they are because they always have been, not because they must be."

High Tech High and School 21 are international models that inspire us when planning for student success at Imagine High. In BC, schools like the Pacific School of Inquiry and Innovation, the Inquiry Hub, Desert Sands Community School, Rick Hansen Secondary, Mount Sentinel Secondary, and Canyon Falls Middle School have been exploring ways to make learning more relevant and connected to the world beyond school. These innovative schools have implemented structures and approaches that have transformed learning for students in observable and measurable ways.

High Tech High, San Diego, California

At High Tech High in San Diego, California, disciplines are integrated, learning is connected and collaborative, and students create learning artifacts of sophistication and beauty. In a grade 11 project called *Speak for the Species*, which combines Biology and the Humanities, students undertake field work, research the impact of human activity on local flora and fauna, and construct engaging oral narratives about endangered species that both inform the public and motivate political action. In the grade 9 *Keeping it Real Project*, combining Humanities, Math, Multimedia and Physics, students study the physics of perception by reading 12 Angry Men, and collaborate with teaching artists from the Museum of Contemporary Art in order to create original works of art on the theme of perspective and perception that are exhibited at the museum. At High Tech High "students are publishing texts, making documentary films, creating a wide variety of projects.... In addition, they're taking their learning into the real world, creating projects that serve their local community and beyond" (Robinson, 2006).

School 21, London, UK

Ron Berger (2003) has spent his career guiding students to create work that is meaningful, is connected to the real-world and is "beautiful." His concept of "beautiful work," learning artifacts created through an iterative process of on-going refinement with peer/teacher feedback, has become a touchstone of School 21, a K-12 public school in the UK where the belief is "that school should be a true balance of head (academic), heart (character and well-being) and hand (generating ideas, problem-solving and making)" (School 21, 2020). At School 21, students explore an integrated curriculum through project-based learning. Even young students engage in projects that challenge their critical thinking and creativity. At the heart of School 21 is "The Quad," a large, flexible learning makerspace with adjoining studios for 3D Design, Digital Media and Photography, Design Manufacturing and Fine Arts. In one project, *What Does Music Look Like?* students explore and research how acoustics could be visualized. The exhibition of their learning artifacts included graphics for T-shirts based on sound waves, student-created dance tracks with accompanying choreography, cymatics videos, student talks and live performances featuring student-designed musical instruments (makey-makey devices and pitched boom-whackers).

British Columbia Exemplars

Pockets of innovation and learning communities rooted in connected, deeper learning exist across British Columbia. Many secondary schools in the province are embarking on new ways to use the curriculum to create learning experiences that present a model for learning that is holistic, relational, practical and continuous (Davidson & Davidson, 2018). In BC, we look to the **Pacific School of Innovation and Inquiry, Rick Hansen Secondary School,** and the **Inquiry Hub** for further inspiration. These schools emphasize inquiry, personalized learning, research, creativity, collaboration, flexible scheduling, cross-curricular and multi-grade learning, student voice and personalized learning. Schools like **Canyon Falls, Desert Sands Community School**, and **Mount Sentinel Secondary** are all exploring ways to make learning relevant, connected, and integrated.

Educators at Desert Sands Community School have developed and nurtured an interdisciplinary, project-based learning cohort rooted in community and place. Learning emerges from a central problem or inquiry, and teachers collaboratively plan using big ideas to connect curricular competencies. Students use a rigorous process of critique and revision to create powerful demonstrations of learning.

In 2019, the cohort professionally published a *Thompson River Field Guide* containing deep traditional ecological knowledge, polished field drawings and student photography. Working in collaboration with Nlaka'pamux and Secwepémc elders and community, students embedded local language and Indigenous understandings throughout the guide (See Appendix I – Rippin' Rivers Run, Desert Sands Community School).

At Imagine High, we believe that innovation requires a radical shift in teacher beliefs, professional practice and school structures. This can only be achieved when educators have on-going professional development in curricular integration and constructivist-oriented pedagogy, enjoy administrative and colleague support, are part of a professional learning community that fosters risk-taking and innovation, and when school structures allow for deeper connections with students, colleagues and the curriculum (Loepp, 2020).

THE BC CURRICULUM AS A CATALYST FOR CHANGE

Districts must also create flexibility in all the elements of the current structures of schooling. They might permit multi-age groupings, allow for courses that move across subjects, give credit for student opportunities outside of school, lengthen the "blocks" of classes, and give teachers more time to collaborate.
(Fullan, 2019, p.67)

British Columbia's curriculum promotes a learning environment that prepares students for the world today. Over the last half a decade, the British Columbia Ministry of Education has released a renewed K-12 curriculum that represents a significant shift in the way learning looks for students. The redesign advances a pedagogical approach that is student-centered and flexible, in which authentic tasks, experiential learning and the development of cross-curricular competencies "foster deeper, more transferable learning" (BC Curriculum, 2020). The First Peoples Principles of Learning have been a key learning philosophy in the curriculum redesign (FNESC, 2008).

The curriculum's focus on personalized learning, classroom flexibility, big ideas and constructivist teaching approaches empowers students to be well-rounded, critical thinkers (Inclusion BC, 2017). The emphasis on the development of competences and deep learning over time, rather than on how much content is covered, creates more pathways for more learners (Richardson, 2017). As well, the curriculum encourages us to think differently about some of the structures associated with secondary education and provides direction for developing flexible learning structures, multi-grade programming and the type of innovative, creative learning environments that have been championed in schools like High Tech High and School 21.

INTEGRATED LEARNING AT IMAGINE HIGH

Success in the future — for individuals, for companies, for nations as a whole—will be based on the ability to think creatively.
(Resnick, 2020, p.14)

The broadest definition of arts and technology includes visual and performing arts, digital media arts and applied arts. While the fine arts - music, theatre, dance and art - will be well represented at Imagine High, our focus is not on developing students as performing artists. While some students may be interested in pursuing performance as they expand their repertoire of skills and abilities within the fine arts disciplines, the integration of the arts and technology is the conduit through which students interact with content and the method by which students demonstrate learning. Our students will graduate with the skills, competencies, and creative mindset that prepare them for futures in the creative sector, as well as a variety of careers that go beyond sterotypical arts paths.

Arts and technology integration is a transdisciplinary approach to teaching and learning that uses the arts and technology to enhance learning experiences, engage students, and provides multiple pathways for students to demonstrate their learning through the creation of artifacts that are the result of rigorous processes, critique and refinement.

Arts Integration at Imagine High

The arts are about the quality of human experiences. Through music, dance, visual arts, drama and the rest, we give form to our feelings and thoughts about ourselves, and how we experience the world around us. Learning in and about the arts is essential to intellectual development.
(Robinson, 2015, p.142)

The movement towards the integration of the arts grew out of research in the early 80s, including Gardner's theory of multiple intelligences, which "advanced the concept that human beings have different intelligences that account for their broader range of potential" and that schools needed to diversify teaching methods to address those differences (Snyder, et al, 2014).

The Kennedy Centre for the Arts (2020), a repository for current research on the arts in education, describes arts integration (Information, Media and Technology, Life and Career Skills) as an approach that is “inherently interdisciplinary" and cites the findings of the National Task Force on the Arts in Education regarding the efficacy of the integration of the arts as contributing to four overarching 21st Century learning outcomes: communication, collaboration, critical thinking and creativity.

Rabkin and Redmond (2006) draw from research in the cognitive sciences to explain the power and impact of the arts on cognition: the mind is not housed in the head but is “embodied” and, because the brain and the body make up “a single, fully integrated cognitive system,” students engaged in learning in and through the arts are “processing a continual stream of sensory information” that engages them holistically.

Nick Rabkin and Robin Redmond (2006) put it this way:
"It's time to stop thinking of the arts as fluff. They make schools better places to learn, and they raise student achievement."

Technology Integration at Imagine High

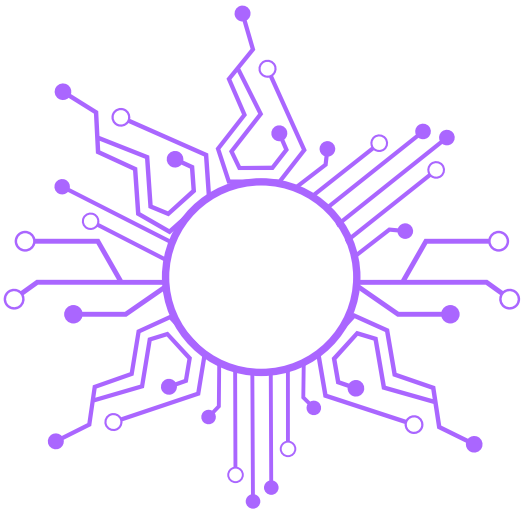
As thoughtful educators know, technology cannot be about the bells and whistles; it should be used to enhance learning, increase engagement and improve academic achievement. (Drake & Reid, 2018, p.42)

There has been a significant amount of research conducted regarding best practices in educational technologies over the past two decades. Educational researcher Dr. Ruben Puentudura (2013) developed the SAMR model that describes a progression from technology as substitution and augmentation to transformational approaches that allow for modification and redefinition of learning through the "creation of new tasks, previously thought inconceivable." (See Appendix #D - SAMR Model of Technology Integration).

Littleton and Hakkinen (1999) conclude that technology has the capacity to support the social nature of learning through the creation of platforms for dialogue, discussion and collaboration that create new contexts for learning. Technology capabilities are continually shifting to meet the needs of diverse and changing contexts in educational settings. Fultan and Riel (1999) suggest that technology has the potential to enable, expand and accelerate learning in ways previously unimaginable. Schools need to "use the potential of technologies to liberate learning from past conventions and connect learners in new and powerful ways, with sources of knowledge, with innovative applications and with one another" (Resnick, 2020).

The International Society for Technology in Education (ISTE) *Standards for Students and Educators* serve as a road map that will support the digital empowerment of our learners at Imagine High. These standards reflect current evidence-based practices for educational technology, promote deep collaboration and challenge us to rethink traditional approaches to teaching and learning (ISTE, 2016). In Canada, the Canadian Association of Principals cautions that educators need to recognize the link between their pedagogical beliefs and the use of technology in the classroom, use technology in ways that support constructivist pedagogies, and negotiate the effective and productive use of technology with students (Sharma & Parr, 2020). (See Appendices E and F, ISTE Standards for Educators and Students, Canadian Association of Principals on Technology Integration).

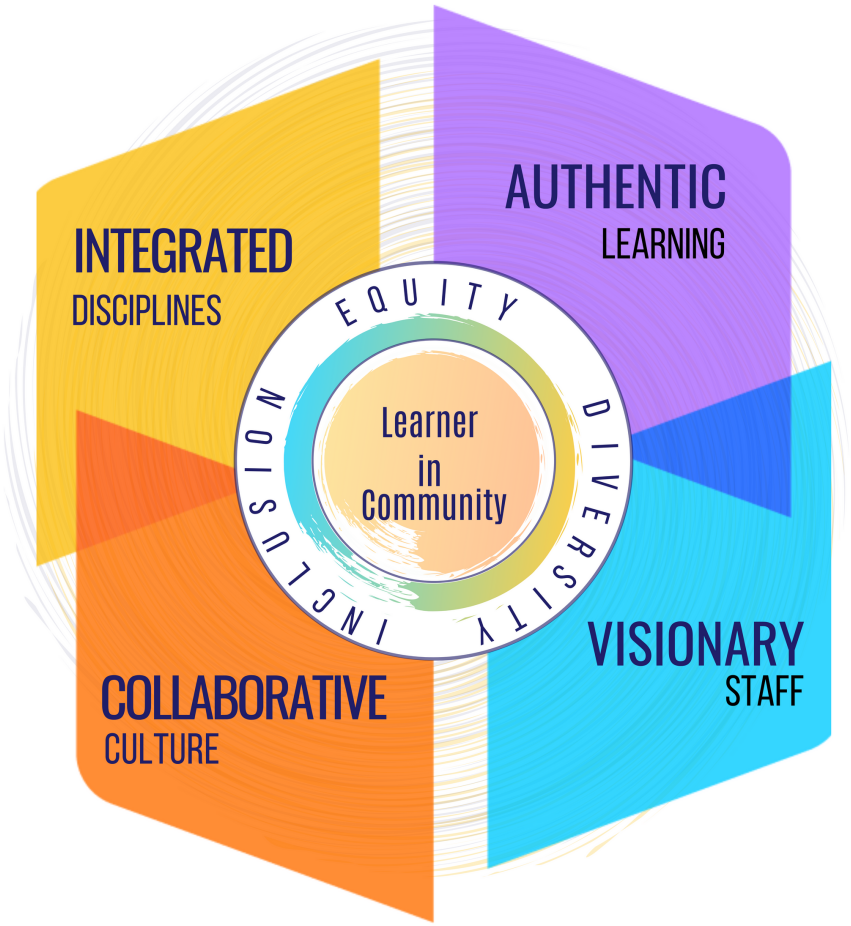
Evidence-based practices ensure that technology is integrated in meaningful and impactful ways so that "the intersection of pedagogy, content and technology" (Mishra, et al, 2015) will enable learners to be competent, capable and connected digital citizens. We believe that information and communication technology is a tool for student engagement, connection, expression, life-long learning and informed citizenship. We want Imagine High learners to use industry-standard technologies as tools to "design, share, and adapt knowledge in critical, ethical, purposeful, and innovative ways" (BC Curriculum – Applied Design, Skills, and Technologies, 2020).



Our goal is to create a technology rich and seamlessly integrated learning environment that redefines how teachers teach and students learn.

CHILLIWACK SCHOOL DISTRICT 33 -
FOUR PILLARS OF INTEGRATED ARTS AND TECHNOLOGY

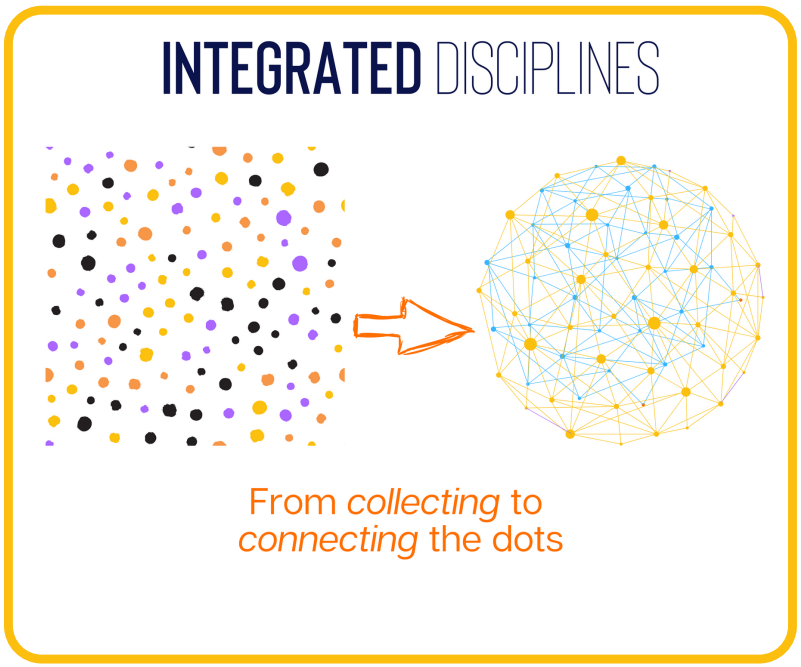
Our vision for Imagine High is supported by the Chilliwack School District's *Four Pillars of Integrated Arts and Technology* which were developed by Assistant Superintendents Kirk Savage and Janet Hall. These pillars include integration of disciplines, authentic learning, collaborative culture and visionary staff.



The four pillars, in combination with our core values of equity, inclusion and diversity, position the ***learner in community*** *at the center of our work.*

Pillar One - Integration of Disciplines

Learning that is integrated and connected through arts and technology draws subjects together and allows students to experience their learning as an integrated whole, rather than a series of separate silos across the hours of the day (High Tech High, 2012).



In its simplest form, curriculum integration is the intentional unification of subjects that are traditionally taught, or thought of, as separate, discrete knowledge silos. As Canadian researchers Susan Drake and Joanne Reid have observed: "Integrated curriculum is effective for academic learning. Evidence collected from many studies at all grade levels for over almost 100 years repeatedly leads to the same conclusion" (Drake & Reid, 2018). They cite curriculum integration as the pedagogical pathway in fostering the 21st Century skills of critical and creative thinking, citizenship, character development and communication – all skills that they believe "transcend specific disciplines" (Drake & Reid, 2018).

They posit that educational trends associated with 21st Century learning pedagogies — inquiry, project-based learning, design thinking, maker spaces, technology and digital literacy — are most fully realized within the context of authentic integration across subjects and real-world application.

We believe that students and staff at Imagine High will find meaning, purpose and joy through engagement with arts and technology within a transdisciplinary model of curricular integration (See Appendix H, Continuum of Curricular Integration).

While the Arts Education (Drama, Dance, Music, Visual Arts) and the Applied Design, Skills and Technologies (Business Education, Home Economics, Culinary Arts, Information and Communications Technology, Technology Education) are described as “areas of learning” in the BC Curriculum, at Imagine High they will provide the pedagogical glue that connects, unifies and enhances learning in other areas of the curriculum. Our vision is that students will develop content knowledge in more than one learning area through the lens of art and technology.

Pillar Two - Authentic Learning

We will position our learners as creators and collaborators by supporting educators to foster deeper learning competencies and real-world learning through community partnerships. Learning will mirror the work of the real world, and support students to be empowered to contribute their talents to their community and the world beyond. Educators will work together to understand how to make real the First Peoples Principles of Learning in order to create experiences that are deeply rooted in place and community (FNESC, 2008).

Engagement with the arts and business community will allow our students to work alongside artists and creative entrepreneurs in learning experiences that connect with passions and interests. Imagine students will tackle larger problems - problems that, like real-world issues, are messy and have more than one solution. Such scenarios encourage students to use analysis and higher order decision making processes to justify their choices (Stamps, 2004).

Through authentic learning experiences, students become “critical and creative thinkers, risk takers, and problem finders. " (Stamps, 2004)

Pillar Three - Collaborative Culture

COLLABORATIVE CULTURE

Teachers and students *co-create* learning experiences in *collaborative communities*

Learning experiences will support deep and meaningful collaboration among students; staff and student learning will be visible and transparent.

A culture of collaboration is critical to supporting innovation and risk taking for both adult and student learners. We will work to embody the idea that together we are all better. Together, we will build a climate of trust, a culture where collaboration is both the norm and the foundation of our school community as we seek to build layers of horizontal connections that inspire learning. Educators, working in teams, will collaboratively plan and share professional practice through democratic conversation, protocols and processes, spirals of inquiry and coaching/mentoring partnerships.

Working side by side with students, teachers will build supportive community partnerships and learning networks, and strive to dissolve the boundaries between school and community. With teacher guidance and peer support, students will create and curate high quality, beautiful work to demonstrate, share and exhibit their learning for authentic audiences. We will share our learning journeys through powerful, public exhibitions of learning that position students as leaders and draw the outside world into our school community.

Pillar Four - Visionary Staff

We will “grow those adventurers in education who are wanting to push the frontiers of what is possible and are driven by a passionate belief in what schooling should and could be like” (High Tech High, 2018). Imagine High will recruit staff who have a desire to embrace and deepen 21st Century learning pedagogies through the integration of arts and technology. Educators will be supported with ongoing professional learning and opportunities for critical reflection within a supportive community. A key focus will be creating structures to grow our practices together and working to make teacher learning as transparent as student learning. Our culture will inspire and nurture innovative teacher leaders to feel supported to take risks and embrace innovative practices. We plan to deepen our collective understandings by partnering with key thinkers and innovation sites in our district, province and beyond, and root our practice in current research through post-secondary connections.

Building our collective capacity for change will be a key component of the work of educators at Imagine High.

CREATIVITY & THE CREATIVE MINDSET

The creative mindset needs the right kind of habitat in which to flourish.

Creativity, through the integration of arts and technology, is at the very core of our vision for Imagine High. Researchers who study creative people and processes from different disciplines (arts, applied arts, math, science, business, technology) have identified the "creative mindset" as a set of discrete cognitive skills that can be taught. Those with a creative mindset are open to and can generate new ideas, are comfortable with ambiguity, are able to play with ideas and imagine possibilities, are flexible in their thinking, and are intrinsically motivated to expend effort and persist in a task (Mamnoon, 2013). Zhao (2012) describes human beings as being born with the desire and potential to create and innovate, to dream and imagine, and to challenge and improve the status quo. He advocates that the role of school is to nurture a creative, entrepreneurial spirit that is fundamentally about the desire to solve human problems.

The integration of arts and technology, coupled with deep learning pedagogies, supports the development of the creative, critical mind and the compassionate, ethical character of our students (Robinson, 2006). Our goal is to develop transdisciplinary habits of mind (Mishra et al, 2011) without sacrificing academic rigour or the acquisition of discipline-specific knowledge. Achieving this goal will require careful scaffolding of student learning, collaborative teaming and partnerships, student voice, high expectations, critique and refinement of learning artifacts and teachers who can design learning experiences that generate creative thinkers in any area of learning.

Connect.
Create.
Contribute.

NEXT STEPS

We welcome the challenge of creating a learning environment that nurtures the minds, bodies and hearts of all members of the Imagine community and empowers them to connect, create and contribute.

Our research inspires us to push the boundaries of what a school can be and to position Imagine High as an innovative learning community where students and staff are connected, learning is transformative, and students develop the competencies to engage with and contribute to their school, the community and the world. We are aware that curriculum integration challenges teachers, especially secondary teachers, to move outside their subject specialties and "shift their belief system from one that is primarily didactic in nature to one that has a foundation in constructivism" (Loepp, 2020).

Meaningful curricular integration at Imagine High will require:

- administrative support
- collaborative teaching teams
- on-going professional development to ensure fidelity to curricular outcomes and the integration of arts and technology
- authentic assessment practices that include a shared language around the critical reflection cycle
- teacher leaders who can provide expertise, mentorship, support and guidance with respect to arts and technology integration
- partnerships (community/provincial/international) with artists, creative businesses and organizations, and performing arts groups
- an artist-in-residence/creative-in-residence program that brings community and expertise to the classroom
- experiential, hands-on learning opportunities for students (inquiry, design thinking, product-based learning)
- on-going demonstrations/exhibitions of student learning
- flexible learning spaces (physical and virtual) and timetabling that allow students and teachers to work collaboratively for longer periods of time
- learning resources that support integration (materials, technologies, tools, expertise)
- connections between/among grades to promote multi-year, multi-age, developmental learning

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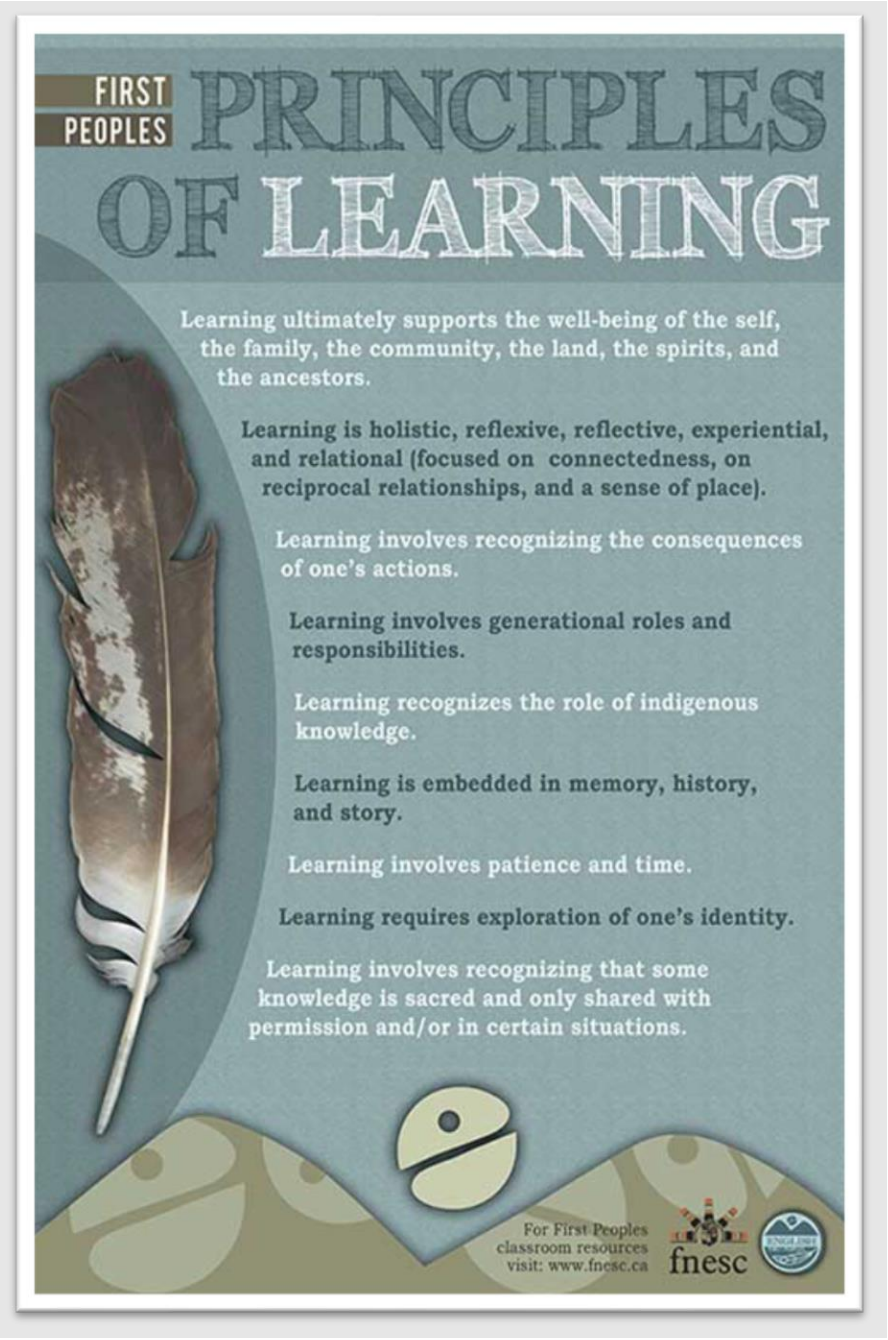
APPENDICES

Appendix A – First Peoples Principles of Learning



(FNESC, 2008)

Appendix B – Organization for Economic Cooperation & Development – The Seven Principles of Learning

The 7 Principles of Learning

This project has explored the nature of learning through the perspectives of cognition, emotion, and biology, and provided analyses of the implications for different types of application in learning environments. The research was synthesized to create seven transversal "principles" to guide the development of learning environments for the 21st century.

1 Learners at the centre

The learning environment recognises the learners as its core participants, encourages their active engagement and develops in them an understanding of their own activity as learners.

- Learners are ***the*** central players in the environment and therefore activities centre on their cognition and growth.
- Learning activities allow students to construct their learning through engagement and active exploration.
- This calls for a mix of pedagogies, which include guided and action approaches, as well as co-operative, inquiry-based, and service learning.
- The environment aims to develop "self-regulated learners", who:
  - develop meta-cognitive skills
  - monitor, evaluate and optimise the acquisition and use of knowledge
  - regulate their emotions and motivations during the learning process
  - manage study time well
  - set higher specific and personal goals, and are able to monitor them.

2 The social nature of learning

The learning environment is founded on the social nature of learning and actively encourages well-organised co-operative learning.

- Neuroscience confirms that we learn through social interaction – the organisation of learning should be highly social.
- Co-operative group work, appropriately organised and structured, has demonstrated very clear benefits for achievement as well as for behavioural and affective outcomes. Co-operative methods work for all types of students because, done well, they push learners of all abilities.
- Personal research and self-study are naturally also important, and the opportunities for autonomous learning should grow as students mature.

3 Emotions are integral to learning

The learning professionals within the learning environment are highly attuned to the learners' motivations and the key role of emotions in achievement.

- Learning results from the dynamic interplay of emotion, motivation and cognition, and these are inextricably intertwined.
- Positive beliefs about oneself as a learner in general and in a particular subject represent a core component for deep understanding and "adaptive competence".
- Emotions still tend to be regarded as "soft" and so their importance, though accorded in theory, are much more difficult to be recognised in practice.
- Attention to motivations by all those involved, including the students, is about making the learning first and foremost more effective, not more enjoyable (though better still if it is both).

6

4 Recognising individual differences

The learning environment is acutely sensitive to the individual differences among the learners in it, including their prior knowledge.

- Students differ in many ways fundamental to learning: prior knowledge, ability, conceptions of learning, learning styles and strategies, interest, motivation, self-efficacy beliefs and emotion; they differ also in socio-environmental terms such as linguistic, cultural and social backgrounds.
- Prior knowledge – on which students vary substantially – is highly influential for how well each individual learns.
- Learning environments need the adaptability to reflect these individual and patterned differences in ways that are sustainable both for the individual learners and for the work of the group as a whole. Moving away from "one size fits all" may well be a challenge.

5 Stretching all students

The learning environment devises programmes that demand hard work and challenge from all but without excessive overload.

- Being sensitive to individual differences and needs also means being challenging enough to reach above their existing level and capacity; at the same time, no one should be allowed to coast for any significant amount of time.
- High-achieving students can help lower-achieving students, which helps stretch all learners.
- This underscores the need to avoid overload and de-motivating regimes based on grind, fear and excessive pressure—not just for humanistic reasons but because these are not consistent with the cognitive and motivational evidence on effective learning.

6 Assessment for learning

The learning environment operates with clarity of expectations using assessment strategies consistent with these expectations; there is a strong emphasis on formative feedback to support learning.

- The learning environment needs to be very clear about what is expected, what learners are doing, and *why*. Otherwise, motivation decreases, students are less able to fit discrete activities into larger knowledge frameworks, and they are less likely to become self-regulated learners.
- Formative assessment should be substantial, regular and provide meaningful feedback; as well as feeding back to individual learners, this knowledge should be used constantly to shape direction and practice in the learning environment.

7 Building horizontal connections

The learning environment strongly promotes "horizontal connectedness" across areas of knowledge and subjects as well as to the community and the wider world.

- A key feature of learning is that complex knowledge structures are built up by organising more basic pieces of knowledge in a hierarchical way. If well-constructed, such structures provide understanding that can transfer to new situations—a critical competency in the 21st century.
- The ability for learners to see connections and "horizontal connectedness" is also important between the formal learning environment and the wider environment and society. The "authentic learning" this promotes also fosters deeper understanding.

(OECD, 2015)

Appendix C – Kennedy Centre for Performing Arts on Arts Integration

The Kennedy Centre for the Performing Arts describes three approaches to teaching the arts: art as curriculum, arts-enhanced curriculum and arts integrated curriculum:

Art as Curriculum

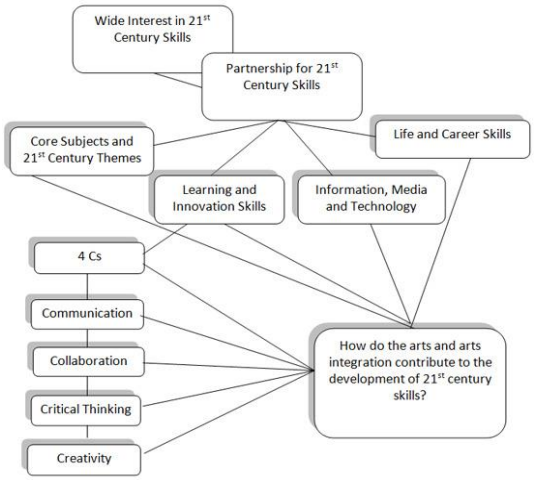
- *Students learn about a particular art form—art, music, drama, dance-- and acquire the skills or understandings associated with it. Schools who use this approach often have a music, art, drama or dance specialist teacher(s) on staff. Student learning may or may not connect with non-arts areas of the curriculum.*

Arts-Enhanced Curriculum

- *The arts are used as a strategy to support other curriculum areas. Content knowledge is the arts may not be explicitly taught; the arts are the "hook" to engage students in learning content, and teachers using this approach need little or no training in the art form.*

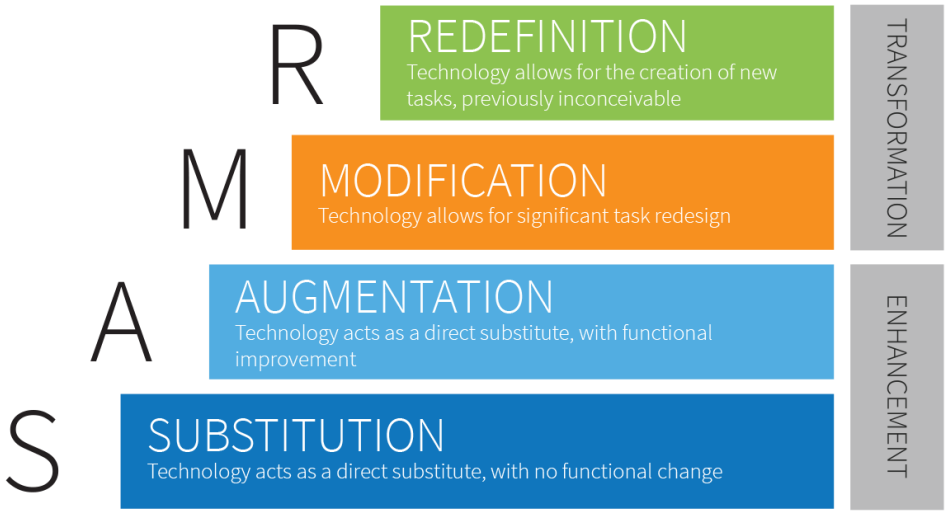
Arts-Integrated Curriculum

- *In Arts-Integrated Curriculum, the arts become the "approach to teaching and the vehicle for learning." Students engage in the creative process to explore connections between/among an art form(s) and another subject area(s). Arts-Integrated Curriculum results in deep understanding of the art form(s) and the other curriculum area(s). More importantly, it requires that teachers engage in on-going professional development to learn about arts standards and how to connect the arts to the curriculum they teach. Specialist art teachers, or artists in residence, also provide art expertise, mentorship, support and guidance.*



(Arts Integration, Kennedy Centre. Image - Kennedy Centre for the Arts)

Appendix D – SAMR Model of Technology Integration



SUBSTITUTION – The very basic level; technology is a substitute, but there is no significant change to the task. For example, a student types on an IPAD instead of writing with paper and pencil.

AUGMENTATION – Technology is still a substitute, but there is a functional improvement which makes the task much more efficient and engaging. At this stage, a student might create an electronic document, insert pictures or embed videos.

MODIFICATION - This is the stage during which learning is transformed. Students might create blogs, podcasts, or publish content online.

REDIFINITION - At this level of integration, teachers and students are collaborative partners in developing learning activities that hardness the power of technology in novel ways. Students might co-create with students from other cities, or countries, in real time.

(SAMR Model- Puentedura, 2013. Image - Schoology Exchange)

Appendix E – International Society for Technology Education Standards for Educators

ISTE STANDARDS
FOR EDUCATORS

Empowered Professional

1. Learner

Educators continually improve their practice by learning from and with others and exploring proven and promising practices that leverage technology to improve student learning. Educators:

a. Set professional learning goals to explore and apply pedagogical approaches made possible by technology and reflect on their effectiveness.
b. Pursue professional interests by creating and actively participating in local and global learning networks.
c. Stay current with research that supports improved student learning outcomes, including findings from the learning sciences.

2. Leader

Educators seek out opportunities for leadership to support student empowerment and success and to improve teaching and learning. Educators:

a. Shape, advance and accelerate a shared vision for empowered learning with technology by engaging with education stakeholders.
b. Advocate for equitable access to educational technology, digital content and learning opportunities to meet the diverse needs of all students.
c. Model for colleagues the identification, exploration, evaluation, curation and adoption of new digital resources and tools for learning.

3. Citizen

Educators inspire students to positively contribute to and responsibly participate in the digital world. Educators:

a. Create experiences for learners to make positive, socially responsible contributions and exhibit empathetic behavior online that build relationships and community.
b. Establish a learning culture that promotes curiosity and critical examination of online resources and fosters digital literacy and media fluency.
c. Mentor students in the safe, legal and ethical practices with digital tools and the protection of intellectual rights and property.
d. Model and promote management of personal data and digital identity and protect student data privacy.

ISTE

iste.org/standards

Appendix F – International Society for Technology Education Standards for Students

2016

ISTE STANDARDS

FOR STUDENTS

1. Empowered Learner

Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences. Students:

a. articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes.
b. build networks and customize their learning environments in ways that support the learning process.
c. use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
d. understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies.

2. Digital Citizen

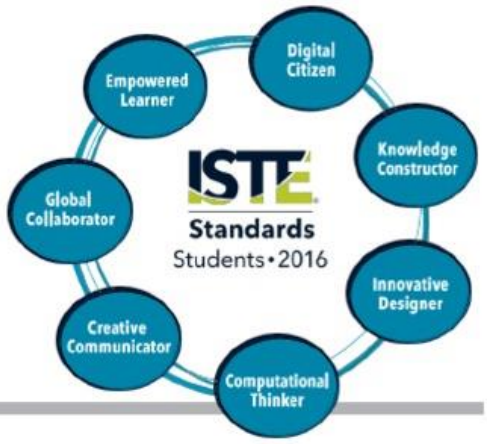
Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical. Students:

a. cultivate and manage their digital identity and reputation and are aware of the permanence of their actions in the digital world.
b. engage in positive, safe, legal and ethical behavior when using technology, including social interactions online or when using networked devices.
c. demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.
d. manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.

3. Knowledge Constructor

Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others. Students:

a. plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.
b. evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources.
c. curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions.
d. build knowledge by actively exploring real-world issues



Appendix G – Canadian Association of Principals

Technology Integration

- *Technology needs to be effectively and meaningfully integrated into teaching and learning (Gorder, 2008)*
- *Technology use needs to be guided by sound pedagogy and the overall purpose or goal of learning, not simply used for technology's sake (Bull & Bell, 2008)*
- *New technologies will require innovative pedagogies*
- *Technology should be part of knowledge creation not simply provision of information (Lambropoulos, 2009)*
- *Technology should not isolate students but involve them in collaborative and constructive communication*
- *In terms of student engagement, we need to move beyond didactic toward more constructivist pedagogies (Taylor & Parsons, 2011) that allow them to "explore different applications for the knowledge and skills they have learned" (Scott, 2015, p. 4)*
- *Student should be part of the process of curriculum design and implementation (Jagersma & Parsons, 2011)*
- *Teachers must model appropriate, acceptable, effective, and productive use of technology*
- *Students require a balance of unstructured, structured, and directed learning situations to develop functional technology skills*

(Sharma & Parr, 2020)

Appendix H – The 7 Transdisciplinary Habits of Mind

- *Perceiving (observing and imaging)*
- *Patterning (recognizing and creating pattern)*
- *Abstracting (ability to grasp the essence of a thing or process and find analogies between and among things or processes)*
- *Embodied Thinking (kinesthetic thinking and empathizing)*
- *Modeling (present something in real or theoretical terms)*
- *Transformational Play (playing with things, or concepts, or ideas in order to create new ways of understanding the world)*
- *Synthesizing (bring together and combining multiple ways of knowing or understanding)*

(Mishra, et al, 2011)

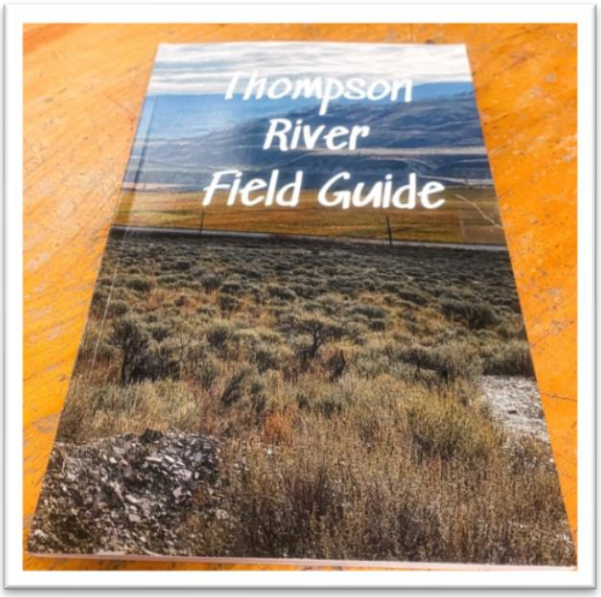
Appendix I – Continuum of Curriculum Integration

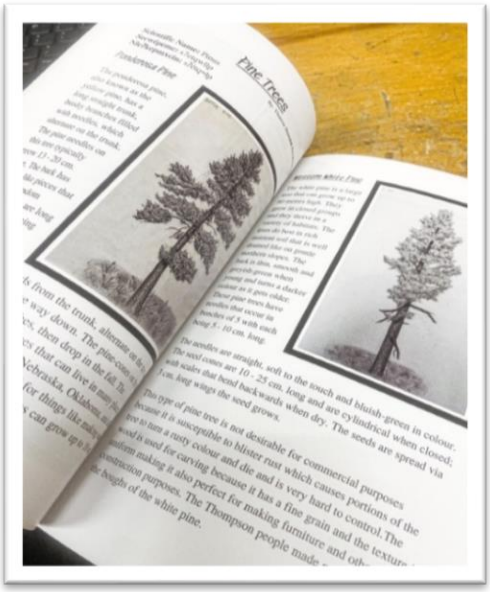
Figure 1.4. Comparing and Contrasting the Three Approaches to Integration

	Multidisciplinary	Interdisciplinary	Transdisciplinary
Organizing Center	Standards of the disciplines organized around a theme	Interdisciplinary skills and concepts embedded in disciplinary standards	• Real-life context • Student questions
Conception of Knowledge	• Knowledge best learned through the structure of the disciplines • A right answer • One truth	• Disciplines connected by common concepts and skills • Knowledge considered to be socially constructed • Many right answers	• All knowledge interconnected and interdependent • Many right answers • Knowledge considered to be indeterminate and ambiguous
Role of Disciplines	• Procedures of discipline considered most important • Distinct skills and concepts of discipline taught	Interdisciplinary skills and concepts stressed	Disciplines identified if desired, but real-life context emphasized
Role of Teacher	• Facilitator • Specialist	• Facilitator • Specialist/ • generalist	• Co-planner • Co-learner • Generalist/specialist
Starting Place	Disciplinary standards and-procedures	• Interdisciplinary bridge • KNOW/DO/BE	• Student questions and concerns • Real-world context
Degree of Integration	Moderate	Medium/intense	Paradigm shift
Assessment	Discipline-based	Interdisciplinary skills/concepts stressed	Interdisciplinary skills/concepts stressed
KNOW?	Concepts and essential understandings across disciplines	Concepts and essential understandings across disciplines	Concepts and essential understandings across disciplines
DO?	• Disciplinary skills as the focal point • Interdisciplinary skills also included	• Interdisciplinary skills as the focal point • Disciplinary skills also included	Interdisciplinary skills and disciplinary skills applied in a real-life context
BE?	• Democratic values • Character education • Habits of mind • Life skills (e.g., teamwork, self-responsibility)		
Planning Process	• Backward design, standards-based • Alignment of instruction, standards, and assessment		
Instruction	• Constructivist approach • Inquiry and experiential learning • Personal relevance and student choice • Differentiated instruction		
Assessment	• Balance of traditional and authentic assessments • Culminating activity that integrates disciplines taught		

(Drake, S., and Burns, R., 2004)

Appendix J – Rippin' Rivers Run (Desert Sands Community School)





RIPPIN Rivers - How do river systems support life in our community?

Human and environmental factors shape changes in population and living standards. (Social Studies 8)	Exploring and sharing multiple perspectives extends our thinking. (English Language Arts 7)	Exploring stories and other texts helps us understand ourselves and make connections to others and to the world. (English Language Arts 8)	Developing our understanding of how language works allows us to use it purposefully. (English Language Arts7)	Evolution by natural selection provides an explanation for the diversity and survival of living things? (Science 7)	Life processes are performed at the cellular level (Science 8)	Energy can be transferred as both a particle and a wave (Science 8).	The theory of plate tectonics is the unifying theory that explains Earth's geological processes. (Science 8)	The behaviour of matter can be explained by the kinetic molecular theory and atomic theory. (Science 8)	Earth and its climate have changed over geological time. (Science 7)	Exploration, expansion, and colonization had varying consequences for different groups.(Social Studies 8).	The relationship between surface area and volume of 3D objects can be used to describe, measure, and compare spatial relationships. (Math 8)

Learning Standards

Curricular Competencies

Students are expected to be able to do the following:

- SOCIALS 7 & 8 (Ancient World to 7th century to 1750)
  - Use Social Studies inquiry processes and skills to ask questions; gather, interpret, and analyze ideas; and communicate findings and decisions
  - Assess the credibility of multiple sources and the adequacy of evidence used to justify conclusions (evidence)
  - Assess the significance of people, places, events, or developments at particular times and places (significance)
  - Explain different perspectives on past or present people, places, issues, or events, and compare the values, worldviews, and beliefs of human cultures and societies in different times and places (perspective)
  - Determine which causes most influenced particular decisions, actions, or events, and assess their short-and long-term consequences (cause and consequence)
  - Characterize different time periods in history, including periods of progress and decline, and identify key turning points that mark periods of change (continuity and change)
- ENGLISH 7 & 8
  - Access information and ideas for diverse purposes and from a variety of sources and evaluate their relevance, accuracy, and reliability
  - Apply appropriate strategies to comprehend written, oral, and visual texts, guide inquiry, and extend thinking
  - Recognize and identify the role of personal, social, and cultural contexts, values, and perspectives in texts
  - Construct meaningful personal connections between self, text, and world
  - Recognize and appreciate the role of story, narrative, and oral tradition in expressing First Peoples perspectives, values, beliefs, and points of view
  - Recognize the validity of First Peoples oral tradition for a range of purposes
  - Exchange ideas and viewpoints to build shared understanding and extend thinking
  - Assess and refine texts to improve their clarity, effectiveness, and impact according to purpose, audience, and message
  - Use an increasing repertoire of conventions of Canadian spelling, grammar, and punctuation
  - Use and experiment with oral storytelling processes
  - Synthesize ideas from a variety of sources to build understanding.
  - Recognize and appreciate how different features, forms, and genres of texts reflect different purposes, audiences, and messages.
- SCIENCE 7 & 8
  - Make observations aimed at identifying their own questions about the natural world.
  - Make predictions about the findings of their inquiry.
  - Collaboratively plan a range of investigation types, including fieldwork and experiments, to answer their questions or solve problems they have identified.
  - Experience and interpret the local environment.
  - Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information.
  - Construct and use a range of methods to represent patterns or relationships in data, including tables, graphs, keys, models, and digital technologies as appropriate.
  - Use scientific understandings to identify relationships and draw conclusions.
  - Demonstrate an understanding and appreciation of evidence (qualitative and quantitative).
  - Consider social, ethical, and environmental implications of the findings from their own and others' investigations.
  - Co-operatively design projects
  - Generate or introduce new or refined ideas when problem solving.
  - Express and reflect on a variety of experiences and perspectives of place.
  - Communicate ideas, findings, and solutions to problems, using scientific language representations, and digital technologies as appropriate.
- MATH 7 & 8
  - Model mathematics in contextualized experiences
  - Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving
  - Engage in problem-solving experiences that are connected to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures.
  - Connect mathematical concepts to each other and to other areas and personal interests.

Content

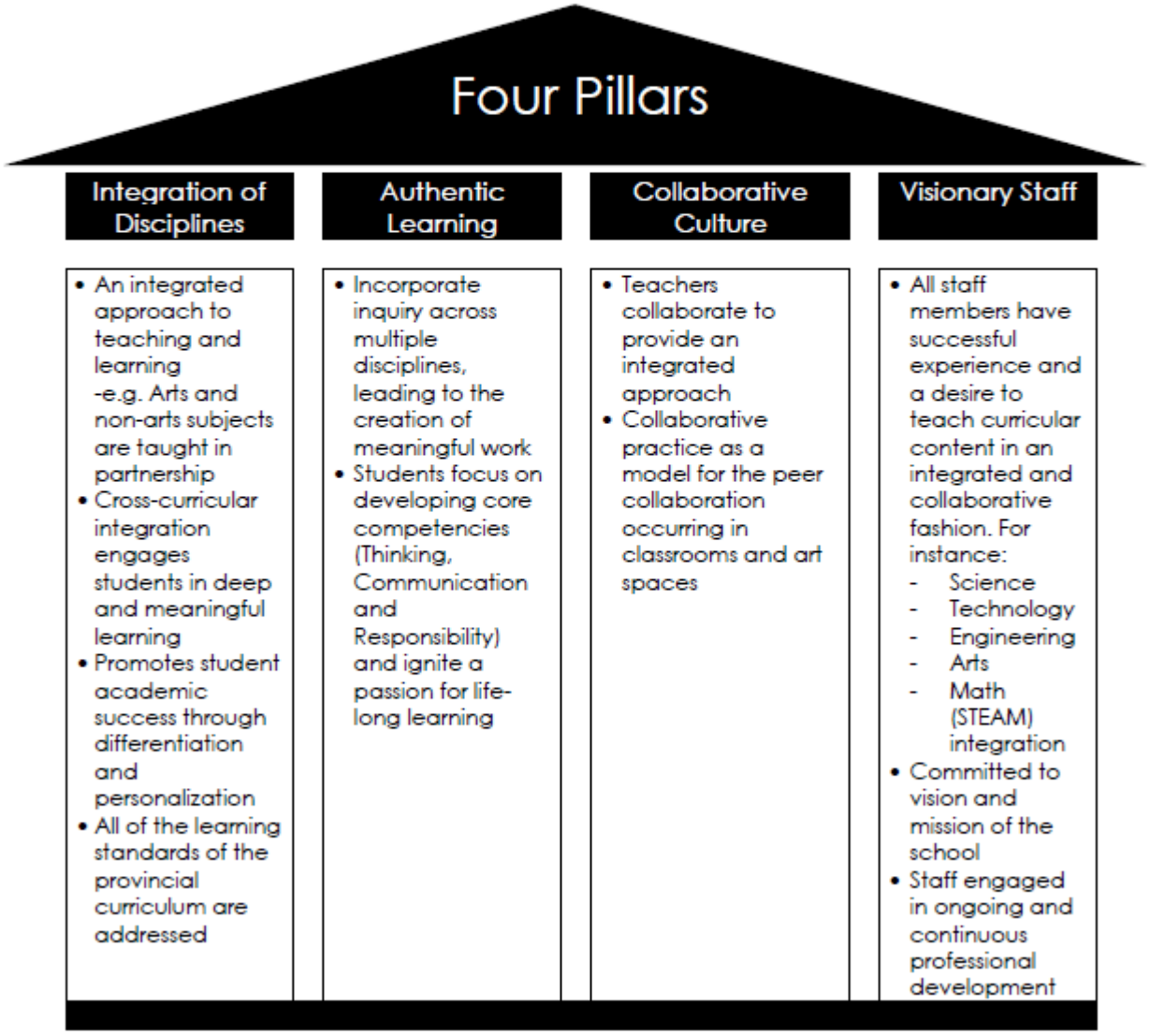
Students are expected to know the following:

- SOCIALS 7 & 8
  - Anthropological origins of humans - early origins of humans in Africa and the migration of early humans out of Africa to the rest of the world, interactions between early humans and Neanderthals, technological developments of early humans and the increasingly sophisticated use of stone tools and early metalworking, the shift of early humans from a nomadic hunter-gatherer way of life to more settled agricultural communities.
  - Human responses to particular geographic challenges and opportunities, including climates, landforms, and natural resources. - Identify the key characteristics of physical environments that affected the following for selected ancient cultures:
    - development and settlement (e.g., proximity to water, fertile land, natural resources, defensibility)
    - the fall of the culture (e.g., earthquakes, tsunamis, volcanic activity, unsustainable human practices)
    - interactions among cultures (e.g., mountain ranges, oceans, rivers)
  - Social, political, legal, governmental, and economic systems and structures, including at least one indigenous civilization.
  - Philosophical and cultural shifts - printing press, Reformation and Counter-Reformation in Europe, Enlightenment, literary and artistic shift.
  - Changes in population and living standards -forced and unforced migration and movement of people, diseases and health, urbanization and the effect of expanding communities, environmental impact (e.g., resource and land use).
- ENGLISH 7 & 8 - Exploring and sharing multiple perspectives extends our thinking.
  - Story/Text - forms, functions, and genres of text, text features, literary elements, literary devices, argument
  - Strategy and Process - reading strategies, oral language strategies, metacognitive strategies, writing processes
  - Language Features, Structures, and Conventions - features of oral language, paragraphing, language varieties, syntax and sentence fluency, conventions, presentation techniques
- SCIENCE 7 & 8
  - Organisms have evolved over time - change in traits of populations over time
  - Natural Selection - the natural process by which certain traits that have a greater fitness for their environment lead to a reproductive advantage; this process happens within a population over time because of genetic variation.
  - The fossil record provides evidence for changes in biodiversity over geological time - the geologic time scale categorizes the time periods of Earth's geologic history, ages of rocks and fossils can be determined by both relative and absolute methods.
  - First Peoples knowledge of changes in biodiversity over time.
  - Evidence of climate change over geological time and the recent impacts of humans: physical records, (ice flow data, fossil record, etc.) ; local First Peoples knowledge of climate change - oral history, change in traditional practice (e.g., the timing of harvest has been impacted by climate change)
  - Characteristics of life - living things respire, grow, take in nutrients, produce waste, respond to stimuli, and reproduce; there is debate as to whether or not to classify viruses as living things.
  - Cell Theory - living things are made of one or more cells, all cells come from pre-existing cells, the cell is a basic unit of life. Types of Cells - prokaryotic and eukaryotic cells, plant and animal cells, cells contain structures that carry out essential functions.
- MATH 7 & 8
  - numerical proportional reasoning (rates, ratio, proportions, and percent)
  - discrete linear relations (extended to larger numbers, limited to integers)
  - construction, views, and nets of 3D objects

(Stacey Parsons and Brent Close, SD 74 Gold Trail
BC Rural Teachers Growing Innovations Project)

Appendix K – SD33 Arts & Technology Integration Pillars

Pillars of an Integrated Arts and Technology School



(Chilliwack School District 33)

Connect.
Create.
Contribute.