

CAREER AND TECHNOLOGY STUDIES (CTS)



CTS courses at Western are specifically designed to provide students with opportunities to explore career possibilities. Want to be an engineer? Then it is highly recommended that you consider Computer Science, Robotics and Design. Thinking of a career as an architect? Then maybe you should consider Design.

The 5 CTS Clusters

- Business, Administration, Finance & Information Technology (BIT)
- Health, Recreation & Human Services (HRH)
- Media, Design & Communication Arts (MDC)
- Natural Resources (NAT)
- Trades, Manufacturing & Transportation (TMT)

Business Administration, Finance & Information Technology (BIT)

Marketing & Management

Marketing & Management Multilevel (5 credits)

PowerSchool Reference: [Marketing & Mgmt_Multi-level MAMX99X]

Prerequisite: None

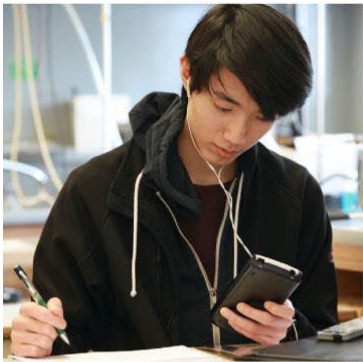


In Management & Marketing Multi-level, students examine the role of business and in a free-market economy and the types of business organizations that exist in Canada today. Students explore foundations of marketing and management in business success. Students complete the course by either planning a venture or building a marketing & re-branding plan for a business of their choice. This course touches on the use of spreadsheets for calculating profit, financial reporting and exploring personal investing. Throughout the course, students are encouraged to follow local, national and international business events affecting 21st century business leaders. If you plan on working in a business, this is a great foundational course to get you thinking like a businessperson!

Marketing & Management 30 (5 credits)

PowerSchool Reference: [Marketing & Mgmt 30 MAM399X]

Prerequisite: Marketing & Management 20 or Multi-level



In Management & Marketing 30, students expand on business themes introduced in the 20-level course. Students discuss significant business news events from a local, provincial, national and global context while learning about the importance of international trade and how money flows within an economy. Using course theory, case studies, and role play, students explore the importance of Human Resources to business enterprises, the impact of organizational structures on business strategy, the power of leadership and how to keep employees motivated at work. Complete the semester by working on a final group project.

IB Business Management SL

IB Business Management is a robust, content-rich program requiring students to develop writing, research and analytical skills across four major functional areas of business. At the same time, students need to deepen their knowledge of local, national and global business. This course progression change allows for effective delivery of content in the new IB Business Management curriculum; meaningfully builds students skills, knowledge and connections; and ensures students are prepared to write the IB Exam.

Students pursuing IB business courses at Western Canada High School are first enrolled in Marketing & Management Multi-level. At the end of Marketing & Management Multilevel, any student successfully meeting the IB academic response standard and meeting the IB learner profile will be recommended to progress to IB Business Management 20.



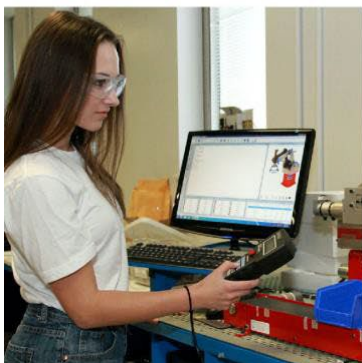


IB Business Management 20 (5 credits)

PowerSchool Reference: [Business Inter IB BUS20XXH]

Prerequisite: IB Business Management 20

In IB Business Management 20 students focus on concepts, case and content relating to Sales & Marketing and Finance & Accounts. Students are introduced to various lenses through which to analyse business problems while building their business management toolkit (BMT). Students use these lenses to analyse, discuss and evaluate business activities at local, national and international levels. Students conduct an in-depth analysis and revamp of a business, including: its product offering and marketing strategy. This is the first of two courses needed to obtain credit in IB Business Management SL.



IB Business Management 30 (6 credits)

PowerSchool Reference: [Business Adv IB BUS30XXH]

Prerequisite: IB Business Management 20

In IB Business Management 30, students expand on skills, knowledge and management tools used by business leaders while exploring new topics such as: Human Resource Management, Leadership and Operations. This course expands on the IB concepts underpinning the IB Business Management curriculum (Creativity, Ethics, Sustainability & Change) while adding to the business management toolkit (BMT). Students write Internal Assessment and prepare for IB exam. This is the second of two courses needed to obtain credit in IB Business Management SL.



Computing Science

Computing Science 10 (3 credits)

PowerSchool Reference: [Computing Science 10] (Paired with Robotics Intro)

Prerequisite: None

In Computer Science 10, students develop skills in the C++ structured programming language, learn basic problem-solving techniques, and learn fundamental computer science concepts. This course pairs with Robotics Engineering 10 course and students spend 9 weeks (approx.) in each area exploring foundational skills essential for further studies in engineering and computer science fields. Most Alberta universities accept Computer Science 30 as a science when applying for programs and Computer Science 10 is the entry point to this program.



Computing Science 20 (5 Credits)

PowerSchool Reference: [Computing Science 20]

Prerequisite: Computing Science 10 & Robotics Intro

In Computer Science 20, students continue to develop proficiency in computer and programming concepts and switch to the JAVA programming language with hands-on algorithm and program development projects. Students focus on writing computer programs with a heavy emphasis on solving problems. Students will enjoy the relaxed environment of the class while being rigorously challenged with intermediate computer science concepts. These include computer science skills, use of functions, use of arrays and structures, file writing skills, as well as the ability to program in a second language. By the end of this course, students will be proud of their ability to create simple AI programs that can play games such as Wordle™, Mastermind™ and TextTwist™. Strong mathematical and problem-solving skills recommended.



Computing Science 30 (5 Credits)

PowerSchool Reference: [Computing Science 30]

Prerequisite: Computing Science 20

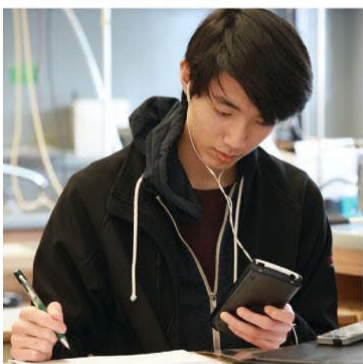
In Computer Science 30, students will continue to develop understanding of advanced concepts of computers and programming using the Java computer language with hands-on algorithm and program development. Students will learn new methods of problem solving and algorithm development. Concepts include Searching and Sorting methods, Object Oriented Programming, Breadth and Depth first search algorithms, Pathfinding algorithms, as well as the ability to program with programmer defined data types in a second language. By the end of the course, students will have assembled a portfolio of projects that will highlight their programming skill. This course competitively situates students for acceptance in Engineering and Computer Science university programs. Interested students will be able to demonstrate their skills by participating in the University of *Waterloo's Canadian Computing Competition*.



Trades, Manufacturing & Transportation (TMT)

Robotics

Robotics is a forward-looking and exciting program that incorporates robotics and computer programming with theory, practical hands-on challenges and experience. Students build and design several different robots using circuit board fabrication and platforms such as Lego Mindstorms, VEX Robotics and Arduino.



Robotics Intro (3 Credits)

PowerSchool Reference: [Robotics Intro]

Prerequisite: None

Robotics Engineering 10 and Computer Science 10 are offered together over the course of a single semester. Students spend one term (approximately 9 weeks) in each course. In Robotics Engineering 10, students are introduced to mechanical, electrical and programming for robots. Students learn about electrical components / soldering and how to build a light-following robot. Through multiple learning activities students solve challenges related to mechanical design, programming with sensors, and develop teamwork skills. The highlight of the course is a class LEGO Mindstorms battle bot competition.

Robotics Intermediate (5 Credits)

PowerSchool Reference: [Robotics Inter]

Prerequisite: Robotics Intro & Computing Science 10



Robotics Engineering 20 broadens students' knowledge and skill in this exciting and rapidly growing field. In this course students use the best robotics equipment available to design and build a variety of robots. Students deepen their knowledge of electrical components and learn to design and fabricate circuit boards using a CNC. They identify real world problems and build solutions using Vex robotics kits. Students deepen their understanding of how to use and program sensors to automate their creations. Through this course students learn how to design, digitally model then 3D print working components for their projects. Students expand their understanding of how sensors function using Arduino coding language. Overall, this course is hands-on, collaborative, and exciting with students working on their robots and using equipment every day of the course.



Robotics Advanced (5 Credits)

PowerSchool Reference: [Robotics Adv]

Prerequisite: Robotics Inter

Robotics Engineering 30 builds on the skills and knowledge from Robotics Engineering 20. At this level, there is an increased focus on robot design. This allows students to build more complicated and personalised projects. Students explore in more detail robotics using platforms such as VEX, Arduino, 3D printing and CNC manufacturing. At the end of the program students will take all that they have learned and showcase it in a project of their choice.

Health, Recreation & Human Services (HRH)

Personal Foods

Each level of Foods includes five required courses of study, with the opportunity for students to earn extra credits by completing more than the required courses. Students work through each course individually and/or with classmates with the teacher as facilitator.

Personal Foods 10 (5 Credits)

PowerSchool Reference: [Foods Personal Intro]

Prerequisite: None

In Personal Foods 10, students examine the role of food, looking beyond consumption to production, visual appreciation, nutrition, meal planning, economics and preparation. Topics of study includes Food Basics (prerequisite course) followed by modules such as: contemporary baking, snacks and appetizers, meal planning and nutrition basics. Students will apply learned knowledge on food safety and sanitation to each lab to create beautiful & tasty treats such as: pad Thai, meatballs, sushi, cupcakes and much more. Modules and recipes subject to change.

Personal Foods 20 (5 Credits)

PowerSchool Reference: [Foods Personal Inter]

Prerequisite: Foods Personal 10

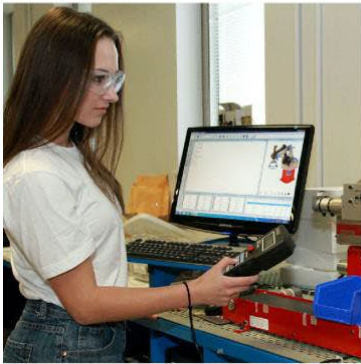
In Personal Foods 20, students delve deeper into the art and science of cooking across topics that may include: creative cold foods, milk & egg products, vegetables and fruit, fish & poultry (or alternate for vegetarians) and international cuisine. Students apply learned knowledge on food safety and sanitation to create beautiful & tasty treats such as: shrimp scampi, Thai ratatouille, Baklava and much more. Modules and recipes subject to change. Please note that students in Personal Foods 20 must have achieved a passing mark (50%) in Foods Basics (FOD1010) as it is the prerequisite for all other Foods modules. Safety and sanitation procedures are a core competency and must be understood and adhered to during all labs.

Personal Foods 30 (5 Credits)

PowerSchool Reference: [Foods Personal Inter]

Prerequisite: Foods Personal 20

In Personal Foods 30 students hone their skills from Personal Foods 10 and 20. Students make new and more advanced recipes throughout the semester. Topics of study may include food presentation, soups & sauces, yeast products, meat cookery (or alternate for vegetarians) and regional cuisine – where they can focus their attention on one region of the world. Students will apply learned knowledge on food safety, sanitation and presentation to each lab to create beautiful & tasty treats such as: chimichurri steak, breakfast poutine, 4 strand challah bread and much more. Modules and recipes subject to change.





Legal Studies Intermediate & Advanced (5 Credits each)

PowerSchool Reference: [Legal Studies Inter] & [Legal Studies Adv]

Prerequisite: None

Legal Studies presents students with practical and fascinating information about how Canada's legal system works and its impact on Canadians. Students will explore legal issues through debates, discussions, film and documentary studies, famous crime case studies, role plays and scenario examinations. Possible areas of study include the History of Law, Constitutional and Rights Law, Criminal Law, Civil Law, Family Law, Employment Law, Law and the Traveller. Advanced credits could come from Criminal Law II, Conflict Resolution, Controversial Legal Topics, Tort Law and Corporate/Commercial Law.

Media, Design & Communication (MDC)

Communications & Design Technology

Film & Animation 20 (5 Credits)

PowerSchool Reference: [Multimedia Inter Multi20XX]

Prerequisite: None

In Film & Animation 20, students interested in film, photography, Stop-Motion cinematography, and 2D and 3D animation will learn to use software like Adobe Premiere Pro, Adobe Animate, and AutoCAD Maya to explore the art of cinematography and various forms of animation. Explore concepts such as visual composition, mise-en-scene, sound, lighting, camera shots, angles and screenplay writing while delving into the exploration of movie genres. Experience elements of pre-production/production and post-production and the roles of filmmaker/ animator. Students will work in small groups with their classmates to multiple pieces of digital media such as Stop-Motion films, learn the skills and fundamentals behind digital 2D animation using drawing tablets, and complex modeling of 3D scenes using industry leading Autodesk software.

Film & Animation 30 (5 Credits)

PowerSchool Reference: [• Multimedia Adv Multi30XX]

Prerequisite: None

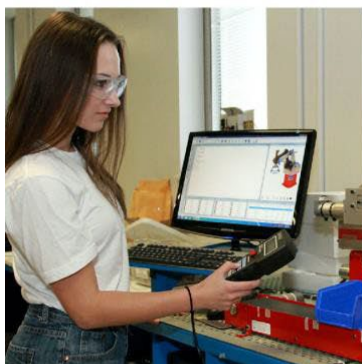
In Film & Animation 30, students build upon the skills and techniques acquired at the 20 level. Students will be given more freedom to apply their screenplay writing and storyboarding to develop more complex pieces of media within the scope of Stop-Motion cinematography. In 2D animation, students will continue their learning with drawing tablets to create complex animations that include all 12 principles of animation as well as highly developed scenes that incorporate both foreground and background animation. In 3D animation, students will work towards complex modeling and learning the fundamentals of animation within Autodesk Maya. They will also be able to learn to rig their characters and work on integrating complex hardware motion capture suits into their work and render their animations using a state-of-the-art rendering computer, both of which are exclusive to students at the 30 level.

New - Photography Multilevel (5 Credits)

PowerSchool Reference: [Photography multilevel]

Prerequisite: None

This course introduces students to the art and science of photography, focusing on visual composition, camera operation, and digital processing techniques. Students will learn how to control exposure using aperture, ISO, and shutter speed, while exploring creative framing and lighting. The course also covers essential post-processing skills using graphic tools to enhance and refine images. Through hands-on projects and critiques, students will develop a strong foundation in both technical and artistic aspects of photography.





Design Studies

Design Engineering & Architecture 10 (5 Credits)

PowerSchool Reference: [Design Studies Intro]

Prerequisite: None

Design Engineering & Architecture 10 is for students interested in architectural design as it applies to residential home design as well as the fundamentals of drawing used by mechanical and product engineers, architects, urban planners and interior designers. Students start the semester by exploring various drawing techniques before exploring digital skills using AutoCAD, Inventor, and Revit. The final part of the course has students working through a hands-on 3D modelling project using the design process for problem-solving. This project is driven by student interest and choice.

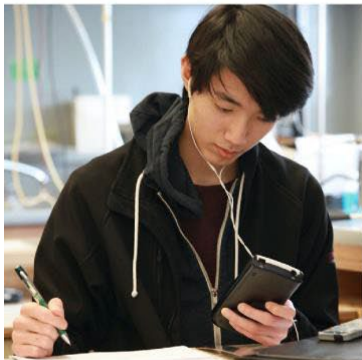


Design Engineering & Architecture 20 (5 Credits)

PowerSchool Reference: [Design Studies Inter]

Prerequisite: Design Studies Intro

In Design Engineering & Architecture 20, students interested in designing houses and / or considering a career as an Interior Designer, Architect or Architectural Technologist. Learn AutoCAD Revit and work on a submission to a local Architectural Design Competition for the chance to win a scholarship. Towards the latter half of the semester, students learn about physical 3D modelling to construct a scale model prototype using modelling material like foam core, 3D printing, cardboard, cardstock, and laser cutters.



Design Engineering & Architecture 30 (5 Credits)

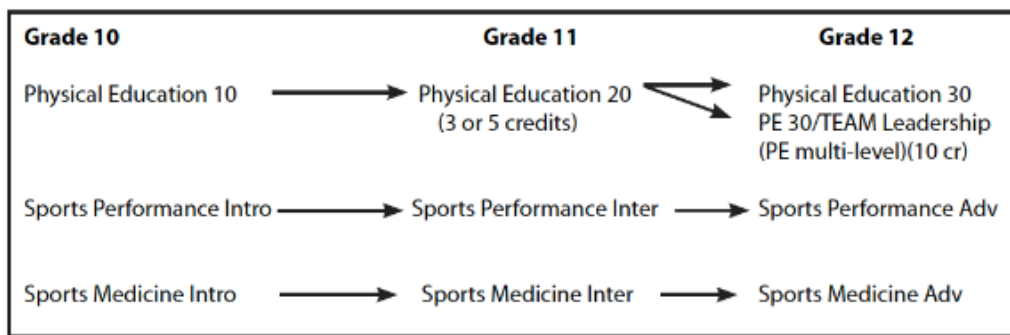
PowerSchool Reference: [Design Studies Adv]

Prerequisite: Design Studies Inter

In Design Engineering & Architecture 30, students use skills from previous levels to work on self-selected projects in industrial, architectural, or engineering design. In addition, they will identify a competition of interest in the design field they would like to enter. Students then propose, create, model, and present their work using approved industry standard methodologies. Advanced Level Design Studies deals with residential design, product design and scale model prototyping.



PHYSICAL EDUCATION & WELLNESS



Physical Education 10 (5 credits)

PowerSchool Reference: [Physical Education 10_5cr]

Prerequisite: None

PE 10 is a compulsory course for Grade 10 students as it is a required course for the Alberta High School Diploma. Students select activities in which to participate. Traditional activities and sports are offered, with a few off-campus opportunities to give students a glimpse of the exciting program waiting for them in Physical Education 20 and 30.

Physical Education 20 (5 credits)

PowerSchool Reference: [Physical Education 20_5cr]

Prerequisite: Physical Education 10

The PE 20 program shifts from traditional activities to a program centered on lifetime activities. Although some activities from the PE 10 program remain (individual, team, dance and fitness activities), the lifetime focus is comprised of activities that take place largely off the school campus. These include hiking, racquetball, golf, wall climbing, bowling, tennis, Zumba, canoeing, inline skating, wave pool, billiards, batting cages and yoga. Students are required to complete 5 service hours by the end of the course.



Physical Education 20 (3 Credits)

PowerSchool Reference: [Physical Education 20_3cr]

Prerequisite: Physical Education 10

This is a one term course that is often coupled with CALM 20 in the alternate term and taken by students who have difficulty fitting all their desired courses into their timetable. Students are required to complete 3 service hours by the end of the course.



Physical Education 30 (5 credits)

PowerSchool Reference: [Physical Education 30_5cr]

Prerequisite: Physical Education 20

Many of the same team and individual activities are offered on campus in this program. Students also participate in some of the same off-site activities as they did in PE 20. In addition, students will have an opportunity to explore some different lifetime activities like squash, kayaking, rumble boxing, horse shoes, curling and camping. Students are required to complete 5 service hours by the end of the course.



PE 30 & TEAM Leadership (10 credits)

PowerSchool Reference: [Physical Education_multi-level]

Prerequisite: PE 20 (3 or 5 credit) and teacher recommendation

Physical Education 30 Leadership is a full year course that blends a leadership class with a PE 30 course. Students will receive 10 credits for the year: 5 for the PE 30 component and 5 for the Leadership component. Students will participate in the same activities as offered in the regular PE 30 course, with the addition of a leadership hosting trip in the Kananaskis in the fall, and a camping trip in the spring. For the leadership component, students will be working through Jeff Jansen's book "The Team Captain's Leadership Manual" in a class setting and they will engage in practical projects that help to develop and challenge their leadership capacity. They will get the opportunity to engage in leadership projects such as: running tournaments, updating the school's athletic website, organizing athletic pep rallies and organizing the school's athletic banquet. This is a dynamic class for students who love to participate in physical activity all year and want to develop their leadership capacity in an athletic setting.



Sports Medicine Introduction (5 credits)

PowerSchool Reference: [Sports Medicine Intro]

Prerequisite: None

This is an elective course composed of 5 1-credit CTS modules per course for those students who are interested in working as student trainers with one of the school's athletic teams. The introductory program will cover basic first aid, CPR, anatomy and physiology, correct methods and procedures of injury assessment, taping and treatment, the care and use of equipment used in sports medicine areas and efficient running of a training room including record keeping and supply inventory. Students are required to spend time with a school sports team doing training duties and will be trained in basic first aid and CPR.



Sports Medicine Intermediate (5 credits)

PowerSchool Reference: [Sports Medicine Inter]

Prerequisite: Sports Medicine Intro

The intermediate level of Sports Medicine is for those students interested in pursuing education in the fields of sports medicine, physical education, athletic therapy, occupational therapy and physiotherapy. This program will cover advanced anatomy and assessment and treatment of specific injuries to the major joints of the body. Students will be recertified in CPR and first aid. The course involves a 30-hour practicum with a school team. The program hours are split between the classroom (approx. 70%) and the practicum (approx. 30%)



Sports Medicine Advanced (5 credits)

PowerSchool Reference: [Sports Medicine Adv]

Prerequisite: Sports Medicine Inter

The advanced course focuses on advanced sport medicine treatment and rehabilitation, along with the recognition, assessment and treatment of head, neck and spinal injuries and abdominal conditions. Recertification in CPR and first aid is also included. There is a 60-hour practicum with a school team and a 6-hour job shadow with a medical practitioner. The program hours are split between the classroom (approx. 40%) and the practicum (approx. 60%).



Sports Performance (5 credits each level)

PowerSchool Reference: [Sports Performance Intro, Inter, Adv]

Prerequisite: Previous course, see chart above

Sports Performance is a physically intense course composed of five 1-credit CTS modules per course (for a total of 15 credits). It is intended to help students reach their athletic potential. Students will work to improve their speed, power, agility, flexibility, endurance, and core stability. Students will participate in a variety of fitness programs designed to emphasize the attributes needed for their sport. Students will also explore topics related to sport performance including nutrition, sport psychology, training techniques and current trends in the fitness and sport development industry.

NEW – Outdoor Education 10 (5 credits)

PowerSchool Reference: [Outdoor Education]

Prerequisite: None



Outdoor Education equips Grade 10 students with foundational skills to explore and thrive in Alberta's diverse landscapes. Aligned with Alberta's CTS curriculum, this course emphasizes hands-on learning, environmental stewardship, and personal growth through outdoor activities. Students will develop practical skills like navigation, shelter-building, campfire safety, and first aid while learning wilderness survival principles centered on safety and respect for nature. Teamwork, problem-solving, and leadership are fostered through activities such as hiking, orienteering, and group initiatives. A key component of the course includes Indigenous perspectives, exploring Aboriginal history, traditional survival skills, plant use, and sustainable living practices. This fosters respect for Indigenous knowledge and its enduring connection to the environment. Environmental education focuses on understanding Alberta's ecosystems, Leave No Trace principles, wildlife conservation, and the human impact on nature. Students will cultivate a deeper connection to their surroundings and a responsibility for preserving them. Whether a beginner or experienced outdoor enthusiast, this course inspires confidence and curiosity in nature. Activities are seasonally appropriate and may include field trips to local parks, trails, and wilderness areas. Prepare to step outside, embrace adventure, and discover Alberta's stunning natural beauty!



Yoga 15/25/35 (5 credits each level)

PowerSchool Reference: [Yoga_multi-level]

Prerequisite: None

Yoga multi-level will focus on performing postures (asanas) and the breathing and relaxation techniques associated with the practice of yoga. Students will acquire and apply a basic understanding of anatomy and physiology relevant to yoga, as well as, an understanding the historical roots of yoga as an art, science and philosophy. Yoga is a wonderful way for students to incorporate mindfulness and relaxation into their daily routine, while working to receive credits needed for graduation. Through the succession of levels students will develop personal management skills and the knowledge to benefit personally from a regular individualized yoga program.



CALM 20 In-Class (3 credits)

PowerSchool Reference: [CALM]

Prerequisite: None

The aim of Career and Life Management course is to enable students to make well-informed, considered decisions and choices in all aspects of their lives. Students develop behaviors and attitudes that contribute to the well-being and respect of oneself and others, now and in the future. Community experts are brought in to present on various topics offering students an interactive learning experience. Western offers this course in Grade 11 as a three credit compulsory course, which is a requirement for graduation as mandated by Alberta Learning.



CALM 20 Online (3 credits)

PowerSchool Reference: [CALM Online]

Prerequisite: None

Online CALM was developed to offer students an alternate method in achieving success with Alberta Learning's requirement to earn 3 credits in the Career and Life Management course, which is required for graduation. The aim of the Career and Life Management course is to give students information so they can make well-informed decisions and choices in all aspects of life that contribute to their well-being and respect for self and others. The main topics covered are physical wellness, mental wellness, healthy relationships, sexual wellness, financial wellness and career/pathway exploration.