

Subject	Year Group 2022-2023	Assignment
Computer Science	9 and 10 (recommended)	To get a bit of a head start, it is recommended that students try out the Unity Microgames tasks linked here: <a href="https://learn.unity.com/course/microgames-learn-the-basics-of-unity">https://learn.unity.com/course/microgames-learn-the-basics-of-unity</a> Follow the instructions to install Unity and modify the microgames.
	11 (required)	Work through at least the first two units of the introduction to Java courses here: <a href="https://codehs.com/go/5428C">https://codehs.com/go/5428C</a>
	12 (required)	As part of the internal assessment, students need to write their Java programs. In the first week back students will demonstrate their working programming to their classmates and start the writeup. Students can contact me over the summer to get help if they need it.
Engineering	9 (recommended)	<p>Many common items involved the expertise of engineers in the initial design, building and testing, and final production. All engineers are problem solvers. The differences among the roles of engineers in varying disciplines are dependent on the types of problems that are solved. In general, there are four major disciplines within the engineering field: <b>chemical, civil, electrical, and mechanical</b>. Many other engineering disciplines are derived as an extension of or a specialization within one of these major disciplines. For example, environmental engineering is a sub-discipline of civil engineering. Other engineering disciplines have resulted from the combination of aspects of two or more of the major disciplines. Mechatronics is a relatively new branch of engineering that incorporates both mechanical and electrical engineering principles.</p> <ul style="list-style-type: none"> <li>● Investigate the engineering profession. Some websites that may be helpful in your <b>research</b> include the following: <ul style="list-style-type: none"> <li>○ <a href="https://tryengineering.org/">https://tryengineering.org/</a></li> <li>○ <a href="https://www.careercornerstone.org/">https://www.careercornerstone.org/</a></li> <li>○ <a href="https://www.engineergirl.org/">https://www.engineergirl.org/</a></li> <li>○ <a href="http://www.discovere.org/">http://www.discovere.org/</a></li> </ul> </li> <li>● Answer the question: What is engineering? Based on your current perception, in a few sentences, define the term “engineering”.</li> </ul>

		<ul style="list-style-type: none"> <li>● Describe the four major disciplines of engineering and identify problems or projects that an engineer in each discipline might encounter. <ul style="list-style-type: none"> <li>○ Chemical engineering</li> <li>○ Civil engineering</li> <li>○ Electrical engineering</li> <li>○ Mechanical engineering</li> </ul> </li> <li>● Present your research via an electronic platform such as Google Slides, Keynote, or PowerPoint. Please include visual representations of each discipline.</li> </ul>
	<p style="text-align: center;">10 (recommended)</p>	<p>Conduct a personal interview with a professional in the field of engineering, engineering technology, or another high-tech field. Your interview documentation should follow the outline format described below, which consists of three major components:</p> <ol style="list-style-type: none"> <li>1. Professional Background <ul style="list-style-type: none"> <li>○ Interviewee name</li> <li>○ Interviewee's specific degree</li> <li>○ Interviewee's place of employment</li> <li>○ Interviewee's email address and/or phone</li> </ul> </li> <li>2. Interview: Ask the interviewee the following questions and record exact responses. <ul style="list-style-type: none"> <li>○ Please describe your engineering field.</li> <li>○ What is your current job title?</li> <li>○ Please describe your particular job and duties.</li> <li>○ What is your average work schedule?</li> <li>○ Starting with high school, please describe your educational background chronologically.</li> <li>○ If you had it to do over, related to your <b>career</b> or education, would you do anything differently?</li> <li>○ What advice would you give to me as someone interested in pursuing a career path similar to yours?</li> </ul> </li> <li>3. Interviewer Reflection: Reflect on your completed interview and answer the following questions. You may add additional reflections or thoughts. <ul style="list-style-type: none"> <li>○ What surprised you the most about the interview?</li> <li>○ What was the most important piece of information that you learned from the interview?</li> <li>○ How has this interview influenced your feelings about your future career?</li> </ul> </li> </ol>

		<p>Your completed interview documentation should be in electronic form. Please retain it for future use in completing your course-long engineering research project and presentation. Contact Mrs. Alan if you have trouble finding a professional to interview.</p>
<p><b>Design</b></p>	<p>11 (required)</p>	<p>Continue/Begin working on your computer aided drawing skills using Fusion360. Download the program (see instructor) and go through the following training modules accessed via this <a href="#">link</a> or the links below.</p> <ul style="list-style-type: none"> <li>● <a href="#">User interface overview</a></li> <li>● <a href="#">Set preferences</a></li> <li>● <a href="#">Adjust display settings</a></li> <li>● <a href="#">Use the Marking menu</a></li> <li>● <a href="#">Use the Toolbox</a></li> <li>● <a href="#">Sketching basics overview</a></li> <li>● <a href="#">Open, close, export, upload, and save designs</a></li> <li>● <a href="#">Create a project</a></li> </ul> <p>Once you have gone through each video, you will create a drawing. Name the design file (use your name and Summer 2022), and save it under a new project that you create (name the project 'Summer Assignment').</p> <p>Create a drawing of something simple, your choice. I suggest picking a common household item such as a cup, spoon, funnel, or a child's toy. Pick something with basic shapes that can be more easily drawn. This drawing will be your first assignment in August. Message me if you have questions. <a href="mailto:salan@cdspatriots.org">salan@cdspatriots.org</a></p> <p>There are a ton of videos on youtube that can assist you, but here are some that I found. Additional video resources:</p> <p><a href="#">Titans of CNC Academy - Fusion 360 Fundamentals</a> (this one is actually a better intro video than the overview above)</p> <p><a href="#">Designing Basic Shapes with Fusion 360</a></p> <p><a href="#">Fusion 360 for Beginners</a> (this one says beginners, but is actually a little advanced, but check it out for some good tips)</p> <p><a href="#">Fusion 360 Tutorial for Absolute Beginners</a></p>

		<a href="#">Learn Fusion 360</a> <a href="#">Fusion 360 Basic Sketch Modeling- Part 1</a>
	12 (required)	<p>As part of the internal assessment, you need to continue your work on your problem statement and research. This will be a summative upon your return.</p> <p>Feel free to reach out over summer to get help if you need it. There will be 1-2 sessions offered during the summer (once in June and once in July) to assist you. Watch Schoology for more details on dates and times.</p> <p>As well, there will be a session offered during the week prior to school starting.</p>
Entrepreneurship	9 (recommended)	<p>Go through the introductory module of NFTE's Operation Mindset by exploring the eight domains of the entrepreneurial mindset through <b>this interactive digital learning tool</b>. Do the experiential learning activities (Learn and Explore) and take the quiz at the end of each of the eight domains. Take a screenshot of each of the eight quiz results (be sure to include the entire screen so each domain name is included in the picture).</p> <p><b>8 Entrepreneurial Mindset Domains:</b></p> <ol style="list-style-type: none"> <li>1. Initiative &amp; Self Reliance</li> <li>2. Future Orientation</li> <li>3. Creativity &amp; Innovation</li> <li>4. Critical Thinking &amp; Problem Solving</li> <li>5. Communication &amp; Collaboration</li> <li>6. Comfort with Risk</li> <li>7. Flexibility &amp; Adaptability</li> <li>8. Opportunity Recognition</li> </ol>
	10 (recommended)	<p>My Favorite Brand assignment Consider the companies or brands that you may follow on social media, or a brand that you have a strong connection to. Briefly research and write up a quick memo describing how the company got started, what was its first product, what problem was it trying to solve or what gap existed in the market at that time that this product was developed for. Compare and contrast its beginning to the company's core purpose today. For example, how has this brand grown, changed or evolved to what it is today? *Microsoft Word has free memo templates*</p>

<b>Business Management</b>	11 (recommended)	Review the attached <a href="#">document</a> on the 4 Key Concepts of IB Business Management (CESC). These are the four concepts that underpin the business management course. Look for a business news headline over the summer that illustrates one of these concepts in practice. Write an email to me (lmontague@cdspatriots.org) that briefly summarizes the article, shares a link to your article, and discusses how it illustrates one of the CESC concepts. Any student who completes this before the 1st day of school will be placed in a random drawing to win a prize the first day of school. The prizes may include a \$10 Amazon gift card and/or a 10-point formative pass.
	12 (required)	<p><b>SL students:</b> Read about the Business Management IA starting on the bottom right of page 625 and through page 628. Please also refer to the recent one-page colored poster I gave you in class, also available in the IA folder in our Schoology class. Create an Infographic that visually summarizes the SL IA. This will be a 10-point formative due by the end of the 1st week back to school.</p> <p><b>HL students:</b> Read about the Business Management IA starting on page 623 and through to stop at the bottom of page 625 where it says “Top Tips for the Internal Assessment SL”. Then start reading again on the bottom of page 627 where it says “Top tips from students” through page 628. Please also refer to the recent one-page colored poster I gave you in class, also available in the IA folder in our Schoology class. Create an Infographic that visually summarizes the HL IA. This will be a 10-point formative due by the end of the 1st week back to school.</p>
	12 (recommended)	In your IB textbook, review units 1, 2, 3, & 4 over the summer. Refer to the “review” questions at the end of each textbook section. Challenge yourself over the summer to answer any two review questions (type this directly in your class business terms journal in the Shared Google Drive) from each section. Any student who completes this will be placed in a random drawing to win a prize the first week of school. The prizes may include a \$20 Amazon gift card and/or a 10-point formative pass.