Welcome back students and parents! And welcome to the world of Design and Technology. This class is an amazing class that will focus on the design process and the use of cutting-edge technology used in the manufacturing world. Students will acquire many hands-on skills through our practical work along with the development of a flexible mind capable of conquering many problems.

Parents, thank you for giving me the opportunity to spend the year teaching your child. I hope that we can work **together as a team** to ensure that your son or daughter grows from this experience and leaves my classroom at the end of the year having been enriched by my class. Not only does this class build on prior years of study, it also develops in students their critical thinking and information processing skills, both important skills in today’s 21st century environment where information is one Google search away. I want this journey to be a fruitful one for all parties, so feel free to contact me via email or phone if you have questions or concerns (see “Communication” section)

**IB Design and Technology Aims**

Through the study of Group 4 material, students should become aware of how scientists work and communicate with each other. The aims enable students through the overarching theme of the Nature of Science to acquire:

1. A sense of curiosity as they acquire the skills necessary for independent and lifelong learning and action through inquiry into the technological world around them
2. An ability to explore concepts, ideas, and issues with personal, local, and global significance to acquire in-depth knowledge and understanding of design and technology
3. Initiative in applying thinking skills critically and creatively to identify and resolve complex social and technological problems through reasoned ethical decision-making
4. An ability to understand and express ideas confidently and creatively using a variety of communication techniques through collaboration with others
5. A propensity to act with integrity and honesty and to take responsibility for their own actions in designing technological solutions to problems
6. An understanding and appreciation of cultures in terms of global technological development, seeking and evaluating a range of perspectives
7. A willingness to approach unfamiliar situations in an informed manner and explore new roles, ideas, and strategies so they can articulate and defend their proposals with confidence
8. An understanding of the contribution of design and technology to the promotion of intellectual, physical, and emotional balance and the achievement of personal and social well-being
9. Empathy, compassion, and respect for the needs and feelings of others in order to make a positive difference to the lives of others and to their environment
10. Skills that enable them to reflect on the impacts of design and technology on society and the environment in order to develop their own learning and enhance solutions to technological problems

**Materials**

For this class you will need the following materials:

* A 3-ring binder (at least 1 ½ ”) – for classwork and notes
* A sketchbook
* A scientific calculator
* Notebook paper and graph paper
* Pencils
* Pens (blue or black)
* Curiosity and an open mind
* A willingness to work

**What We Will Learn**

This class can be described as a fusion of two things: 1) Design and 2) Technology. Design focuses on the creation and refining of an idea that addresses a problem in a creative way. It is a process, cyclical in nature that can often go through several iterations until a final product is produced. Technology focuses on how we take that idea and turn it into a functional product. This course is split into two years of work. During the first year, we will cover the units listed below. Each unit will conclude in a unit test along with a practical experience (design project). In addition to these units, we will be completing the Group 4 Project requirement of the IB curriculum (more about this later in the syllabus).

* Unit 1 – Introduction to the Design Cycle and Modelling (Topic 3)
* Unit 2 – Innovation (Topic 5)
* Unit 3 – Human Factors and Ergonomics (Topic 1)
* Unit 4 – Raw Materials (Topic 4)
* Unit 5 – Production (Topic 4)

**How We Will Learn**

I believe in a very hands-on approach to teaching. This will look a little differently this year due to digital learning and the continually evolving world of living during a pandemic. Based on the current digital learning schedule, there will be a morning and afternoon work session for students to work along with a 55 minute instructional time of direct “face-to-face” virtual learning with us via Google Meet. During the morning or afternoon work session, students will spend time working on building their skills by doing practice problems or looking ahead to prepare for the next class by watching videos or completing required readings. This will help open the door to new material and allow me as teachers to meet the students where they need to grow their understanding so as to maximize our limited class time. In addition, we will be forming Learning Groups for students to have a few peers to engage with directly and work together with as needed, especially on key assignments like Design Projects. The key word for this year is **FLUID** since a fluid is something that conforms to the situation it is in. This is slightly better than being flexible since even flexible things can break. This model of instruction will be evolving and updating as our situation changes but no matter how things change, I plan to foster the best learning environment possible. Students, I am willing to change and meet you where you are to enable you to reach your full potential in the world of chemistry but it requires you to take some initiative, reach out to us as needed, and to be an **ACTIVE PARTICIPANT** in the learning process.

**Grading System**

The grading scale for this class will adhere to the Douglas County Grading Policy: A (90-100), B (80-89), C (71-79), D (70), and F (Below 70). Your grade is based on weighted percentages as displayed below.

|  |  |  |
| --- | --- | --- |
| **Type of Assignment** | **Category** | **Weight** |
| Tests | Summative | 30% |
| Projects |
| Lab Reports |
| Classwork | Formative | 50% |
| Homework |
| Quizzes |
| Final |  | 20% |

It is your responsibility to complete all assignments. I do not believe in “busy work” & everything assigned is necessary for your success in this class. It is essential that you stay on top of your work & realize areas where you need help. **Take advantage of class time, Slack, and tutoring to get help in these areas**. You must ask questions & seek help when needed or I will not know your concerns.

Grades are also published on the school’s secure website (Infinite Campus) accessible with a combination of individualized codes. I encourage parents to check this frequently and to communicate with me so that we can better work as a team to serve your son or daughter. I will do our best to keep these electronic grades up to date. Expect them to be accurate at the end of each week with the exception of major projects or tests recently turned in.

Students will be allowed to retake each quiz one time within two weeks of the quiz being graded. Those students exhibiting good attendance (*less than three absences and less than four tardies* - excused or unexcused) will also be allowed to **replace their lowest summative grade** based on their performance on the final. There are no final exam exemptions. Any instances of cheating or plagiarism will result in a zero.

**Classroom Protocols**

The motto for my classroom is “Expect Excellence”. This motto is one that I use to emphasize that I expect my students to put forth their best effort in whatever they do in our class. I expect to challenge your son or daughter throughout this semester and help them grow as a learner and as a person. In order for me to help your son or daughter to grow, the classroom needs to have an effective learning environment. To that end, there are several areas where issues may arise. These policies are written below and apply to a digital learning environment.

1. **Classroom Rules:** My classroom works under six rules that I have designed to create and maintain the necessary positive, orderly atmosphere during digital learning. These rules are detailed below. Infractions of these rules will result in disciplinary action.
	1. **Be logged in the appropriate Google Meet with video on and audio muted ready to start class when the “bell rings”**
	2. **No inappropriate language or inappropriate content to be shared**
	3. **Raise your “hand” on Google Meets if you have a question or a comment (get this** [**Chrome Extension**](https://chrome.google.com/webstore/detail/nod-reactions-for-google/oikgofeboedgfkaacpfepbfmgdalabej?hl=en) **if you don’t already have it)**
	4. **Listen and obey all instructions the first time around**
	5. **Technology stays put away unless being used as part of the class**
2. **Tardies**: Tardies interfere with learning. It is my expectation that all students should be in their assigned seats with needed materials out, ready for instruction, when the bell rings. Restroom needs should be fulfilled before or after class.
3. **Absences**: Over the course of the year, there will be times when you will be absent. If an absence occurs, please check with a classmate, the class website, or Google Classroom for missed assignments. Make-up work for an absence will follow Douglas County High School policy so students who miss a class will be allowed 5 days to make up work. If a student is unable to take a test on the appropriate day, they will need a parent email to explain the issue before being allowed access to the test.
4. **The Workshop:** This class is a very practical and hands-on class that involves students creating and testing projects. The workshop can be a source of unlimited learning that builds conceptual knowledge alongside practical skills. An enormous amount of time is spent planning, preparing, and fostering the safest conditions possible. Due to the presence of power tools, hazards do exist especially as the result of negligence or off-task behavior. Students unable to employ safe conduct will be excluded from these activities and *receive a zero*. There will be no alternate assignment. At the end of this document you will find the class’s **WORKSHOP SAFETY CONTRACT**. Please read it carefully before signing the syllabus agreement form.
5. **Late Work:** Assignments will be accepted after the due date but require the students to submit a response to the LATE WORK GOOGLE FORM taking ownership by giving two reasons why they did not complete the assignment on time and two strategies they will follow in the future to complete assignments on time. The Google Form response must be SUBMITTED in place of the assignment on the due date to prevent a loss of points on the assignment. However late assignments without a letter or students that have more than 5 late assignments will incur a 10 point penalty per class day and ltheir work will not be accepted after the third late class day.

1. **Tutoring:** As the semester progresses and we learn increasingly difficult material, the need for tutoring may arise. I am available before or after school to help aid in your understanding of the material during the appropriate free work hours (9-10 AM; 2:35-3:25 PM) via Google Meet
2. **Extra Credit:** To offer a challenge to some students and to help those who may find that chemistry is not their strong suit, there will be a handful of extra credit opportunities available throughout the year that I would strongly encourage you to take advantage of to boost your grade. No extra points will be awarded at the end of the year outside of these extra credit assignments.

**Your IB Score**

The IB score that you will receive in July of next year is based on both practical work and your performance on the IB exams in May 2020. A table below summarizes how it is calculated.

|  |  |  |  |
| --- | --- | --- | --- |
| **Component** | **Weight****(%)** | **Duration****(hours)** | **Format and****Coverage** |
| Paper 1 | 30 | 0.75 | 30 multiple choice questions |
| Paper 2 | 30 | 1.50 | Short answer and free response questions |
| Practical Work (Internal Assessment/ IA) | 40 | 40 | Individual design project |

As you can see, your IA is a decent part of your overall score but unlike Papers 1 and 2, it is one that you have lots of control over. It take the form of an individual project where you research a problem that can be solved using a product. Then you design possible solutions to that product. Following this, you will develop a prototype and test it. We will be practicing the different aspects of an IA throughout the year. While you won’t actually start your IA until your senior year, you can already begin keeping a list of possible topics/problems that you think are interesting.

**Communication**

There are several ways to get in touch with me or to learn more about the class. The first and foremost method available to you is the appropriate Google Classroom class as well as the class website: [www.adamschemistry.com](http://www.adamschemistry.com). In Google Classroom, you will find posts about what is happening each day as well as what assignments are due. The website will serve as a repository for useful documents along with some links to good references. I can be reached by email at andrew.adams@dcssga.org. My aim is to respond to all emails within a 24 hour period. Finally, students should already be a part of the IB Design Tech DCHS Slack Group. On this platform (accessible on a computer or on your phone via an app) students can send messages directly to me or their peers, form study group channels, and receive announcements on the #2022 class

**The Group 4 Project**

In the IB curriculum, all science subjects are grouped together under the umbrella of “Group 4” much like foreign languages are grouped under “Group 2” and math classes are grouped under “Group 5”. As a part of an IB science class, students are required to complete the Group 4 Project. This project is intended to reflect the fact that in real life (aka outside the classroom), science is rarely done in isolation and is instead usually an interdisciplinary endeavor across multiple scientific disciplines. Due to this, the Group 4 Project is a research-based project done in groups composed of students from each of our IB science classes here at DCHS (Chemistry, Biology, and Design Technology). This project will be a continuous project that we will work on throughout the year in various stages culminating in a community open house event where students share their projects with their peers, their parents/guardians and other family, and, most importantly, the community as a whole since science is intended to better society. More details about this year’s Group 4 Project will be handed out soon. In the meantime, please go ahead and begin to think whom you might want in your group.

**Thank you and I am looking for to an excellent year! – Mr. Adams*Course Syllabus Agreement Form***

Please read and fill out the front and back of this sheet and return it to Mr. Adams by taking a picture, and submit it to the correct Google Classroom assignment

*We have read and understood the Course Syllabus for Mr. Adams’ class detailed above. In addition, we have read and understood the WORKSHOP SAFETY CONTRACT on the following page. We agree to abide by the rules and procedures set forth in each.*

*Finally, we agree to work as collaborators with Mr. Adams as he seeks to instruct our son or daughter. We recognize that they have provided us with appropriate methods of communication for us to use to address concerns or questions should the need arise.*

*Due to digital learning, quizzes and tests will be assigned to take at home. Students are expected to work alone and without a cellphone during these assessments. They will not use notes nor will they use resources to look up the answer to any question. In addition they are not to take a picture, screenshot or any other form of duplication of the assessment. By signing below we are agreeing to these rules and acknowledge that any violation of this policy is a violation of the school’s Academic Honesty Policy.*

STUDENT NAME (printed)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

STUDENT SIGNATURE : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

PARENT SIGNATURE : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Workshop Safety Guidelines and Contract**

1. Always wear eye protection. Wear safety glasses, goggles or a face shield.
2. Get the instructor’s permission before you use the equipment.
3. Use the equipment only when the instructor is in the laboratory.
4. Report all accidents, near accidents or injuries to the instructor immediately.
5. Don’t use tools or equipment that are in any way defective. Tell the instructor if a tool is dull or broken or isn’t working properly.
6. Don’t use any equipment until you have been shown how to use it correctly and safely. Don’t use it unless you understand the instructions.
7. Keep clothes tucked in and sleeves neatly rolled up. Loose clothing can get caught in a machine and cause an injury.
8. If your hair is long, tie it back or wear a cap over it. Long hair can be caught in a moving machine.
9. Remove rings, bracelets, watches and, necklaces before you do any work in the workshop. Watches and jewelry should not be worn in the laboratory.
10. Don’t wear gloves when you use the tools or operate any of the equipment. The only time it’s OK to wear gloves is when you’re handling rough lumber.
11. Wear protective shoes. Wear hard shoes or boots with rubber soles and rubber heels. Don’t wear sandals in the laboratory.
12. Wear approved ear protection around loud, noisy equipment.
13. Wear a dust mask or an air filter when working around a lot of wood dust. Wood dust can be harmful if inhaled.
14. Use finishing materials, thinners or other oily or flammable liquids only in well-ventilated areas.
15. Clean up spills. Don’t leave anything on the floor that someone could slip on.
16. Keep used rags in an approved, covered metal container. Damp, oily rags can ignite through spontaneous combustion. The heat produced by oxidation is enough to start a fire.
17. Know where the fire extinguishers are located and know how to use them before yhere is an emergency.
18. Keep cabinet doors and drawers closed.
19. Aisles have to be kept clear and free of litter, scraps, and materials. Don’t leave anything on the floor that could be tripped over or slipped on.
20. Vises should be kept closed when they’re not in use.
21. Keep workbenches clear and organized. Don’t pile up tools and don’t lay tools down so they hang over the edge of the bench.
22. Always use a brush or a rag to clear away sawdust and scraps. Never use your hands to wipe off a surface.
23. Use the right tool for the job. Use the tool only for what they’re designed to do. Use the right size tool.
24. Carry pointed or sharp tools with the point or edge held down toward the floor. This will help avoid injuries if you bump into something or if someone bumps into you.
25. When you hold a tool, hold it by the handle. When you hand someone a tool, hold it so they can take it by the handle.
26. When you’re finished with a tool return it to its proper storage area. Return it to the tool room, tool rack or cabinet where it belongs.
27. If you’re handling large or heavy materials, get someone to help you. Also, ask someone to help or ‘tail-off’ for you when you cut a large piece of material on a machine.
28. Lift with your legs, not with your back. Lifting improperly or carelessly can cause severe back injuries.
29. Be sure your hands are dry and that you’re standing on a dry floor when you use electrical devices.
30. Check the condition of the power cord. Don’t use the equipment if the insulation on the cord is damaged, cut or frayed. Tell the instructor.
31. When you disconnect a power cord, pull the plug; don’t yank on the cord. Hold the plug and pull it out of the outlet.
32. Use all the recommended guards and safety devices on the power equipment. Never remove a guard without the instructor’s permission.
33. Disconnect the power equipment any time you need to make major changes or adjustments.
34. Turn off the machine any time you make minor changes or adjustments. Never adjust equipment while it’s running. Wait for it to come to a complete stop before you make the adjustment.
35. Do not, any time you leave a machine, it off and stay with it until it comes to a complete stop.
36. When you approach a machine to use it, make sure the person who used it before you turned it off. Make sure it’s completely stopped.
37. Respect the safety zones. Stay away from anyone operating the power equipment.
38. Don’t talk to them or distract them in any way. Don’t let anyone distract you when you’re using the equipment.
39. Concentrate on what you’re doing; give it your full attention. If you don’t feel well or if there’s some reason you can’t concentrate, tell your instructor.
40. Work at a safe speed. Don’t rush or hurry through a project. Working too fast is dangerous and it will result in poor craftsmanship.
41. Don’t fool around in the shop! There are no exceptions to this: Don’t ever play around in the workshop.