

**Design and Technology**  
**Course Information and Outline**

**Course Name:** Design and Technology

**Course Code:** TDJ-08

**Teacher:** Mr. Papadopoulos

**Materials:** Each student **must** bring the following materials to each class:

- pencil
- planner/agenda
- notebook/folder
- math set for drawing (ruler, compass, protractor, triangle, eraser)
- calculator
- hair elastic (for long hair)

**Textbook:** *SciencePower 8* by McGraw Hill – Ryerson

You will be using your Science textbook and will be notified when you will need to bring this to class. Any textbooks that you receive for Design and Technology will be on loan and will be collected at the end of every period/topic section. **YOU ARE RESPONSIBLE FOR RETURNING YOUR TEXTBOOK AND OTHER MATERIALS IN THE SAME CONDITION IT WHICH IT WAS GIVEN TO YOU.** The replacement cost for a lost textbook is \$60. The rebinding fee for damaged material is \$20.

**Classroom Expectations:**

1. Arrive on time and be prepared to work.
2. Complete all assignments.
3. Know and abide by the Code of Behaviour (see Student Agenda).
4. Follow the guidelines for safety outlined in the shop safety lessons.
5. If you are having difficulty or have any questions seek extra help.
6. If you are absent (due to illness) or know you will be absent (due to a field trip), it is your responsibility to catch up. If you are absent on the day of a test or assignment due date, it is your responsibility to arrange a date and time with the teacher to write the test or hand in the assignment

## Course Outline:

The topics and projects listed below will be presented in the order indicated but will frequently overlap. At any given time students may be working on a written project, research assignment, designs/plans, and materials project at the same time. This is done in order to maximize materials, resources and facilities of the shop. It is not intended that all students must or will finish all projects in the shop. The activities are available so that all students have the opportunity to proceed at their own rate.

Duration	Topic & Overall Expectations	Description
3 weeks	<p><b>Introduction</b></p> <p>Students demonstrate that they have the knowledge, skill(s) and habits of mind required for safe participation in Science, Design and Technology activities when they:</p> <ul style="list-style-type: none"> <li>• maintain well-organized work space;</li> <li>• follow established safety procedures;</li> <li>• are able to identify possible safety concerns;</li> <li>• consistently show concern for their safety and that of others</li> </ul>	<ul style="list-style-type: none"> <li>• Safety rules and procedures</li> <li>• Machine and tool introduction</li> <li>• Material properties identification</li> <li>• intro to elements and principles of design</li> <li>• intro to design process</li> <li>• intro to scientific inquiry process</li> </ul>
6 weeks	<p><b>Mechanical Systems: Design and Function</b></p> <ul style="list-style-type: none"> <li>• select and use appropriate material and strategies to make specific projects</li> <li>• demonstrate an understanding of the factors that contribute to the efficient operation of mechanism and systems</li> </ul>	<ul style="list-style-type: none"> <li>• simple orthographic drafting techniques used to prepare design plans for projects</li> <li>• Text: Chap.1- Introducing Systems</li> <li>• Students will investigate the functions of various mechanical systems including levers, pulleys, gears, wheels, screws, ramps and wedges</li> <li>• Students will design their project to meet a given set of specifications and consider its function while learning the proper techniques for using tools and machines</li> <li>• Project(s): drawbridge, tape ball Launcher, catapult,</li> </ul>
6 weeks	<p><b>Mechanical Systems</b></p> <ul style="list-style-type: none"> <li>• Design and make a mechanical system that is operable</li> <li>• Demonstrate an understanding of the factors that can affect the making of their project including the needs of the user</li> <li>• Investigate simple and complex machines</li> </ul>	<ul style="list-style-type: none"> <li>• Text: Chap. 2- Getting to Work</li> <li>• Students will design and develop their own criteria for the construction of a “mechanical form” from given set of materials</li> <li>• Students will examine/analyze the mechanical systems efficiency and develop possible</li> </ul>

	<ul style="list-style-type: none"> <li>Investigate force and work</li> </ul>	revisions <ul style="list-style-type: none"> <li>Project(s): gumball machine, container with movable part</li> </ul>
5 weeks	<p><b>Designing efficient Systems and Machines</b></p> <ul style="list-style-type: none"> <li>Investigate and measure forces that move objects;</li> <li>Distinguish between velocity and speed;</li> <li>Determine the velocity ratio of devices with pulleys and gears</li> <li>Formulate questions about and identify needs and problems related to a mechanical system, and explore possible solutions</li> </ul>	<ul style="list-style-type: none"> <li>Text: Chap. 3 – Designing Efficient Systems</li> <li>Using the internet students will research and use their knowledge of systems and mechanisms to design and construct a whole vehicle powered by a source</li> <li>they will examine and analyze their own designs for strong and weak points.</li> <li>Project(s): Mouse Trap Car</li> </ul>

\*This course will be supplemented with a study of current events and issues. Related Articles from newspapers, magazines, scientific journals, online resources etc. will be discussed regularly in class. Students will be encouraged to connect what they are learning with what is happening in the world around them.

**Assessment and Evaluation:**

Students will be assessed using a variety of methods such as reports, designs, drawings, projects, etc. in most cases a rubric based on 4 levels of achievement will be used to assess the curriculum expectations.

<b>Level 4</b>	<b>80-100%</b>
<b>Level 3</b>	<b>70-79%</b>
<b>Level 2</b>	<b>60-69%</b>
<b>Level 1</b>	<b>50-59%</b>
<b>Level R (remediation required)</b>	<b>Below 50%</b>

**Level 3** is the **provincial standard**. A student achieving at Level 3 should be well prepared for work in the next grade level.

Each term is reported independently and will reflect only the work completed in that term. Students receive Design and Technology for one semester (half year). Students assigned to Design and technology in the first semester will receive a mark in term 1 & 2, while students assigned to design and technology in the second semester will only receive a mark in term 3. In either case the same overall projects and materials will be covered.

**Mark Breakdown:**

Students will be evaluated according to the following scheme (subject to minor changes) based on the achievement categories outlined by the Ministry of Education and Training:

Achievement Categories	Per Term
Knowledge and Understanding of Concepts	20 %
Communication	20%
Thinking, Inquiry and Design Skills	25%
Projects and Challenges	35%

**Reporting of Learning Skills:**

Learning skills will be assessed throughout the duration of the course and will appear on the report card.

The learning skills that will be assessed are:

Works independently / Teamwork / Organization / Work Habits / Initiative

These will be evaluated using the following scale:

Excellent (E) / Good (G) / Satisfactory (S) / Needs Improvement (N)

**Sign and Return this Portion to the Teacher**

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**Student Name (print):** \_\_\_\_\_

Dear Student and Parent(s)/Guardian(s),

I want this year to be exciting, challenging and rewarding! I know that with dedication, perseverance and a positive attitude, each and every student will succeed and prosper. As we are in this together, I welcome you to the team and invite you to participate in making this school year a successful one.

Please sign below to indicate that you have read and understood the evaluation procedure and the policies pertaining to this course.

\_\_\_\_\_

\_\_\_\_\_

Student Signature

Parent/Guardian Signature

Parent contact information: Home Phone: \_\_\_\_\_

Work Phone: \_\_\_\_\_

E-mail: \_\_\_\_\_