



6th Grade Design

Willows Preparatory School 2019-20

Subject Aims

- Enjoy the design process, develop an appreciation of its elegance and power
- Develop knowledge, understanding, and skills from different disciplines to design and create solutions to problems using the design cycle
- Use and apply technology effectively as a means to access, process, and communicate information, model and create solutions, and to solve problems
- Develop respect for others' viewpoints and appreciate alternative solutions to problems

Keys to Class

- Don't be afraid to "fail" (your ideas- not your grade) Discoveries are partly made from trial and error. Don't be so afraid of failure, that you don't try and push yourself. If you're not "failing," you're not trying! IB asks us to be risk-takers!
- Good designs are planned. We will keep track of all the work we do, that goes into developing and creating a design. Be organized and responsible!
- Self-reflect. What can you do to be a better teammate? Collaboration is a key component of this class.
- Push yourself to follow your passions and keep improving. For example, if you want to do more programming and you've mastered Java, dive into Python, C++, HTML, etc.

Objective Criterion

<p>A – Inquiring and Analyzing – Students are presented with a design situation from which they identify a problem that needs to be solved. They analyze a need for a solution and conduct an inquiry into the nature of the problem.</p>	<p>Can we break down a problem in simple terms? What parts of the problem can we target in our design? How are we influenced by preexisting products or solutions? What constitutes a design brief from the point of view of the client or target audience?</p>
<p>B – Developing Idea – Students write a detailed specification which drives the development of a solution. They present the solution.</p>	<p>What design criteria must be met for a successful solution? What elements of our proposed solution are feasible? How can we best present the solution?</p>
<p>C – Creating the Solution – Students plan the creation of the chosen solution and follow the plan to create a prototype sufficient for testing and evaluation.</p>	<p>Have we considered the impact of time and resources in our plan? What technical skills do we require? Were any changes made? Why did we make changes?</p>
<p>D – Evaluating – Students design tests to evaluate the solution, carry out those tests and objectively evaluate its success. Students identify areas where the solution could be improved and explain how their solution will impact on the client or target audience.</p>	<p>How can we test the solution? What constitutes a successful or unsuccessful test? What improvement or changes would we make in retrospect? Did we meet the needs of the client or target audience?</p>

Content Brief

Trimester 1	Trimester 2	Trimester 3
<p>Students will revisit the Design Thinking process, with an emphasis on prototyping, iteration, collaboration, and project management. Students will also develop and practice: mathematical estimation skills, coding conditionals and variables, as well as knowledge and experience with computer applications.</p> <p>Major Project: Power Tower</p>	<p>Students will revisit the role of empathy in the Design Thinking process and how that informs subsequent decision making including the development and application of technology and computer science applications and principles. More details forthcoming.</p> <p>Major Project: Tech 2.0 Repurposing project/TBD</p>	<p>Students will practice and apply all of their knowledge and experience to a Robotics challenge. For the challenge, students will create a robot that performs a useful function or service and they will need to justify the usefulness and show results/impact of testing with the robot. More details forthcoming.</p> <p>Major Project: Robotics Challenge/TBD</p>