

Cubesat Blueprint

Grade Level	2	Workable grades	K,1,2,3,4
Recommended Time	1 hour		
Curriculum Alignment	<p>MATH - SHAPE AND SPACE (3D Objects and 2D Shapes):</p> <p>General Outcome: Describe the characteristics of 3D objects and 2D shapes, and analyze the relationships among them.</p> <p>Specific Outcome:</p> <p>8. Describe, compare and construct 2D shapes, including:</p> <ul style="list-style-type: none"> ● Triangles ● Squares ● Rectangles ● Circles <p>SCIENCE 2-3: Construct, with guidance, an object that achieves a given purpose, using materials that are provided.</p>		

Background Information (Science required for the lesson) :
<p>What are Cube Satellites?</p> <ul style="list-style-type: none"> - Cube satellites are composed of 10x10x10 cm cubes - Each cube represents 1U (unit) <ul style="list-style-type: none"> - Cube satellites can range from 1U to 12U - Ex-Alta 1 is a 3U cube satellite (3 cubes stacked together; 30x10x10) <p>Universal Components of a Satellite:</p> <ul style="list-style-type: none"> - Computer: processes and coordinates information from different systems, and communicates with ground stations on Earth - Payload: the technologies and systems aboard a spacecraft that are responsible for completing mission objectives - Magnetometer: a device used to measure magnetic fields around the Earth; helps satellite properly position itself in space - Radio antenna: used to communicate with ground stations on Earth - Solar panel(s): a source of energy

Explanation of Activity:	Notes:
<p>A step-by-step guide for your activity:</p> <ol style="list-style-type: none"> 1. Ensure that all required materials are ready for use (pen/pencil, Engineering paper) 2. Present the scenario for the activity. 3. First step is for the students to write down the date, their name, and the title of their drawing in the boxes at the top of the paper. 4. Remind the students of what they need to include and label in their design: <ol style="list-style-type: none"> a. Radio antenna for communication b. Solar panel for energy c. Payload d. Computer for general control e. Magnetometer for orientation 5. Give/draw examples of designs using the ones included in the presentation. 6. Students may begin drawing their designs. 7. Within the last 15 minutes of the lesson, or when everyone is finished, ask some students to volunteer and showcase their designs. 8. Last 5 minutes is for a wrap-up and any questions the students want to ask. 	

Materials Required (INCLUDE ALL MATERIALS NEEDED EVEN PEN AND PAPER)
<ul style="list-style-type: none"> - Pencils or pens - Engineering paper; 1 sheet per student

Changes to the activity for COVID-19
Send the teacher the materials and have AlbertaSat members present the slides remotely