Lunar Lander [INNOVATOR]

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PROJECT STEPS	WAYS OF PROBLEM SOLVING AND SHARING YOUR PROJECT		
Dream It!	**THINK BIG** My solution is unique to me, but I don't know how others have solved the same problem	**THINK BIGGER** I have researched other solutions to my problem to get a better idea of how to make an even better solution	**THINK BIGGEST** I have researched other solutions and drawn from different disciplines such as science, art and history to gain inspiration
Draw It!	**EXPLORING** My model or drawing can be explained by the makers	**EVOLVING** My model drawing can be understood by anyone because it is clearly labeled, to scale	**EXPANDING** I used 3D sculpting tools, like TinkerCAD, Fusion 360
Build It!	**EXPLORING** This is all new for me, I am trying new tools or materials and I am not sure what will happen	**EVOLVING** I am experienced with the tools and materials, I am able to make several iterations of my idea with ease	**EXPANDING** I am experienced with the tools and materials, I am able to make several meaningful iterations of my idea based on testing and feedback
Share It!	**PEER CRITIQUE** Share your project with someone who did not make it, ask them for their feedback and suggestions on how to improve the design	**COMMUNITY SHOWCASE** Share your project in a school wide or online family share showcase where you can explain the process of how you made your design	**DIGITAL CITIZEN** Why not share things you have made that you are proud of, like your latest project, slime recipes or invention? TikTok, Instagram, Tumblr and Twitter are good places to start if you are over 13
Expand It!	**SOLOIST** I took my design and tried various changes to its design based on my testing	**COLLABORATOR** After documenting, testing, and listening to the feedback of others, I changed my design and it is better with the help of others	**INNOVATOR** I created something that we have never seen or mashed together different crazy Ideas to make something new.
Makers Choice Is there a criteria that you feel your project or efforts should be evaluated on that is not listed yet? If so, write it here:			

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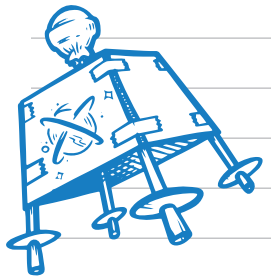
RATE THIS PROBLEM:

How hard was this project over all? (Check appropriate box)

1	2	3	4	5	6	7	8
EASY							HARD
☐	☐	☐	☐	☐	☐	☐	☐

REFLECT ON YOUR PROBLEM:

What made it hard (lack of ideas, knowledge, time, materials, help, tools, etc.)?



All designers and engineers get stuck when making something for the first time. When I got stuck or needed inspiration what did I do?

- ☐ Did I use a tutorial? (listen and watch to learn)
- ☐ Did I discuss my ideas with others in person or online? (discuss to learn)
- ☐ Did I start to build even before I totally knew what I was doing? (tinker to learn)

1. Why do we spend time and energy designing tools that will go off earth? What can we learn from this kind of exploration?

2. The most dangerous thing about landing is the impact. How do engineers mitigate the force of impact on a landing object? How did you solve this problem?

3. The lunar lander must land on the surface of the moon in a stable and predictable manner, what design elements did you use to keep your astronaut upright during landing?