(60 pts) Approx. 8 days

This second unit is all about solving problems using the Engineering Design Process! In doing so, you'll work with a small team to put together a detailed solution to a real-world problem. Engineering is all about using math and science to solve problems and make the world a better place, and here you get to do exactly that! You'll need to make a good plan with your team to make sure that you can work through all the paperwork and details about your product or process by the deadline. Keep in mind that our submission deadline (**September 6, 2019**) is two weeks before the UAF deadline!

1. Watch the *AIC Overview* video and the *Choosing A Problem* video with your team. Think about what kind of problems might fit the AIC criteria well.
2. Work with your team to pick a problem to solve. It should be a problem that interests you enough to spend a few weeks exploring it and thinking through various solutions. Possible problems include:

Unhealthy air in the winter	*Cold noses walking outside*	Not waking up on time for school	*Lathrop Students getting tardy passes quickly*

3. Brainstorm at least 15 possible solutions to the problem. Record your ideas with pictures or words in your engineering notebook. Discuss them with your team, but be careful not to overly critique any one idea! Remember that in brainstorming "there are no bad ideas"!
4. Research the problem you've chosen online with a simple Google search. Record useful information you find in your engineering notebook.
5. Research solutions that already exist by doing another simple Google search. Record useful findings in your engineering notebook.
6. Brainstorm at least another 15 ideas with your team. Brainstorm with pictures, words, and descriptions. Be sure to record your brainstorming in your engineering notebook.
7. Work with your team to pick a solution that you want to work with. Have everyone on your team draw a picture of the solution and share your ideas to make sure that everyone is on the same page.
8. Divide the work of writing mini-essays for the Arctic Innovation Challenge among your team members as evenly as possible. The five mini-essay prompts are:

Mini-Essay #1	Mini-Essay #2	Mini-Essay #3	Mini-Essay #4	Mini-Essay #5
Give a general description of your idea. (Pictures can be uploaded as well)	Who does your idea help and how does it help them? Explain how your idea solves a problem or addresses an unmet need.	How is your idea original? What makes your idea new and exciting? What has research shown about similar ideas?	How would you make your idea into a reality? What are the next steps for your idea to be taken to market for people to buy/use?	How will this idea be profitable? How is your idea financially sound? What economic value will your idea create?

9. Have your team sign up for an AIC account at (http://www.arcticinno.com) and submit your idea and mini-essays by our class deadline of **Friday September 6, 2019**!
10. Spend your remaining time developing sketches, prototypes, or Autodesk models of your solution to help develop the design even further.
11. Give a 10-minute presentation to the class about your AIC problem, process, and solution!
12. Take the Unit 1 Quiz on the Engineering Design Process ***on or before August 30!***

Part 1: Game Design Tasks		*5 points*	*4-3 points*	*2-1-0 points*
	Problem Selection	+ You and your team/group selected a good problem for the AIC challenge		- No problem selected, or the problem chosen is unrealistic
	Engineering Design Brief	+ You created a complete design brief of the problem you selected	- Your design brief is missing components	- Your design brief is mostly missing
RESEARCH & BRAINSTORM FOCUS	Research & Brainstorm	+ You brainstormed 15 ideas for possible solutions + Your ideas are recorded in your engineering notebook	- You brainstormed less than 15 ideas	- Brainstormed ideas are not related to the topic
	Research & Brainstorm	+ You brainstormed an additional 15 ideas (for a total of at least 30) for possible solutions + Your ideas are recorded in your engineering notebook	- You brainstormed less than 15 more ideas	- Brainstormed ideas are not related to the topic
	Research & Brainstorm	+ You did some research online about the problem + You recorded that research in your notebook	- The research you recorded is not clearly linked to the problem	- You did not do any research - Your research is not recorded
	Research & Brainstorm	+ You did some research online about solutions that already exist + You recorded that research in your notebook	- The research you recorded does not include existing solutions	- You did not do any research - Your research is not recorded
	Research & Brainstorm	+ You identified the solution you want to work toward + The solution comes from your brainstormed ideas	- Your identified solution is vague or unrealistic	- Your idea is not a development of your research & brainstorming
		10-7 points	*6-3 points*	*2-1-0 points*
	Complete Mini-Essays	+ All of your mini-essays are complete + Your mini-essays have all been edited and reviewed by your team + Your essays are well written	- Your essays are poorly written - Your essays are not all complete	- Your essays are seriously lacking
	Sketches & Models	+ Your solution has been further developed through sketching + Your solution has been modeled in Autodesk or possibly built as a prototype	- Your solution is only rendered in one way - You sketch/model is overly simplistic	- You did not make sketches or models of your idea
	AIC Presentation	+You gave a 10 minute presentation on your AIC solution to our class		- No presentation given
	Unit 1 Quiz	+ Up to 10 points – your grade is based on how many questions you get correct		- You did not take the **Unit 1 quiz before August 30**
		5 points		*0 points*
	AIC Submission	+ Your AIC submission is complete on time (**Sept 6, 2019**) + Your AIC submission is turned in to UAF by the deadline		- Your submission is not complete on time - Your submission is not turned in to UAF
	Achievement	+ Get selected by UAF to present at the AIC Competition Presentations		