LEARN:

- How to quickly get started
- Mission-specific information
- In-depth software guides
- Overview of FLEET curricula, grants, etc.
- FAQs & How to contact us

American Society of Naval Engineers &
Navatek

F.L.E.E.T.

USER GUIDE

Note: There are text features that describe hints for schools, error message explanations, and general hints.

CONTENTS

WHAT IS FLEET?

FLEET is a 100% free STEM video game that engages students in the engineering design process through shipbuilding. The free, flexible FLEET curricula teach/reinforce the science, engineering and math skills used in the video game.

FLEET educational outreach is run by the American Society of Naval Engineers (ASNE), which has been supporting the engineering since 1888. The software is developed by Navatek a world leader in ship design and research. The Office of Naval Research provides financial and technical support, including $1,000 mini-grants available to schools and organizations that need support to implement these resources.

Everything is free to download at www.fleetengineering.org.

Questions/Comments? Use the FLEET forum: http://www.navalengineers.org/Membership/Forum
Or, email us directly: fleet@navalengineers.org.

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QUICK START

This one-page guide goes quickly through the install process. There are more thorough instructions in the next section (Steps #1-#29).

1. Download FLEET at http://www.navalengineers.org/STEM-FLEET/Download-FLEET. Choose the correct version for your machine, then click "View Cart". In the next screen, click "Checkout". To complete checkout, you will need to create an account at navalengineers.org. (Steps #1-#5)
2. Click "Process Order" to complete the process. You will receive an email with a link to the installer. Click the link and the installer will download. (Steps #6-#8)
3. Open the installer and follow the prompts to install FLEET. (Steps #9-#11)
4. Open FLEET then create and validate your new account using the registration code "fleetrocks2018" (Steps #12-#19)
    a. You can create your log-in, password, and organization in these screens.
5. Log into FLEET using you newly-created account.
6. If you want to quickly explore the game, choose "Quick Play". Or, you can start a mission in "Mission Headquarters" (Steps #20-22).
7. You will design your ship in the drydock by adding () and removing () components. Be sure to explore the menus to find all the components, boats, helicopters, etc. (Steps #23-27)
8. You can save () three different ships and open them later (). (Steps #28-29)
9. Check the logbook () occasionally to compare your scores to others (p. 22).

Table 1. Overview of Steering Controls.

Button	Controls
Up ↑	Increases the speed by moving the throttle up.
Down ↓	Decreases the speed by moving the throttle down. The ship can go backwards!
Left ←	Steers the boat to the left, or port, when the ship is going forward.
Right →	Steers the boat to the right, or starboard, when ship boat is going forward.
Esc	Pulls up a dialogue box allowing you to exit, restart, or return to the mission.
Mouse right click	Adjusts the view angle (useful for clicking on boats/helicopters to launch them).
Mouse left click	Click on boats and helicopters to show the launch button. Click the button (on the left side of the screen) to launch and use boats and helicopters.

Quick Contacts

Technical support: navatekstem@gmail.com **Any other questions:** fleet@navalengineers.org

Getting the Most out of FLEET

Our curriculum (p. 23) uses FLEET as the application of key science concepts. We embed this work in 21st Century Skills like creativity, collaboration and media literacy. We find FLEET works best when students do hands-on investigations first, then use FLEET to apply these lessons in the FLEET physics simulator.

STEP-BY-STEP FLEET INSTALLATION INSTRUCTIONS

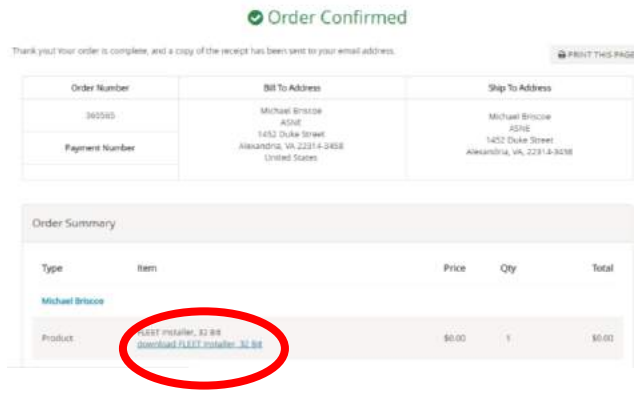
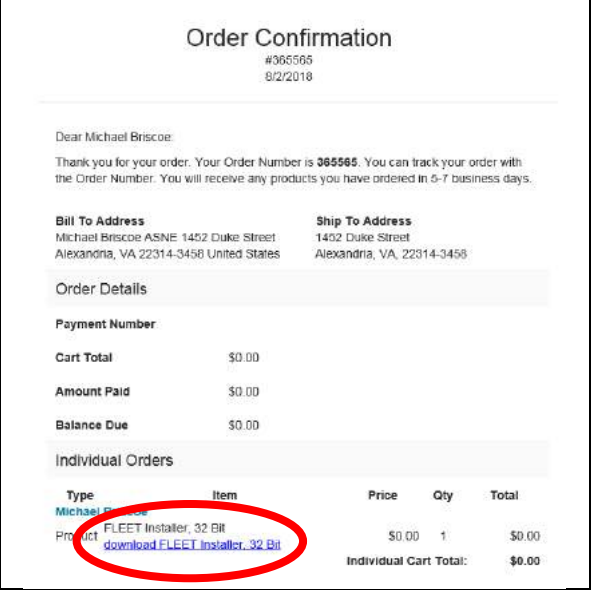
Requesting Access to the FLEET Installer

1. Go to fleetengineering.org and click "Download FLEET", or go directly to http://www.navalengineers.org/STEM-FLEET/Download-FLEET
2. There are three versions of FLEET currently available:
    a. **FLEET Windows Installer, 64 Bit:** This version is compatible with all Windows machines that run Windows 7 or a more recent version of Windows.
    b. **FLEET Windows Installer, 32 Bit:** This version is also compatible with all machines running Windows 7 or a more recent version, and it's designed for slower computers. If you think your computer may have issues running a video game, this version is your best option.
    c. **FLEET Mac Installer:** This version is compatible with all Mac computers
    d. **NOTE:** There is no version for Chromebooks, iPads, Android tablets, phones, etc. If this prevents you from using FLEET, please email us fleet@navalengineers.org.
3. Click the Green Plus button next to the appropriate version, and then click "View Cart".
4. The next screen will show that there is $0 due and lists your FLEET version in the "Item" column. Click "Checkout".
5. You will need to log-in or create a new account. To create an account, click "Register" at the top right corner of the screen.
    a. We will email you a link to the FLEET installer in Step #7, so be sure you register with an accurate email. The rest of the data is of much less importance.
6. After you are logged in, you can click "Process Order" to finish this process.

Opening the FLEET Installer

7. For most users, you simply click the link provided on the webpage or in the email and the installer opens.

Table 2. Highlighting the link to the installer.

Webpage with Link to FLEET Installer	Email with Link to FLEET Installer
	

8. Some users will need to open the link in a new tab to force your machine to download the file.

a. For Windows users, right click on the hyperlink and choose “Open link in new tab”
b. For Mac users, CTL click the hyperlink and choose “Open link in new tab”
c. If the installer still does not download, contact our Help Desk (fleet@navalengineers.org).

9. Click on the downloaded file to open it.
10. The installation prompts will guide you through this process. You will be asked
    a. Is it ok to save the files in your Program folder?
    b. Do you want a FLEET desktop icon?
    c. Do you want FLEET to run after you install it?
11. After you complete the installation prompts, you have successfully downloaded FLEET on your machine.

Suggestions for School IT Staff

⚓ Put the FLEET installer on a jump drive.
⚓ Create a spreadsheet with all user names and passwords.
⚓Open FLEET on each machine and use each user name before the first class.
⚓ Distribute a card to each team with user name, password, internet access info, and any computer log-in information needed.

Opening FLEET for the First Time

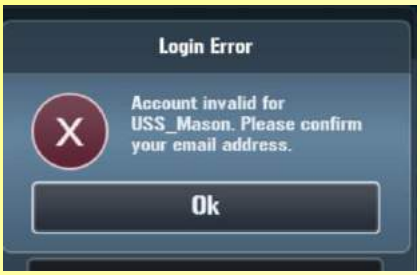
12. When you open FLEET, the files will be updated from the remote server as necessary. This process will take a long time the first time you open FLEET and it may take time after significant FLEET updates.
13. When the “Launch” button becomes active, click it.
14. There are three buttons at the bottom of the Account Login screen to consider.
    a. “Change/Forgot passwords” – Click this button to enter your email address and receive access to your account. You must have access to the email account you used to sign up.
    b. “Don’t have an account? Sign up now!” – Click this button to create your new account.
        i. User names need to consist of underscores, letters and/or numbers (no symbols). We reserve the right to exclude users with inappropriate names.
    c. “Resend username and verification email” – You will need to verify your account. If you do not receive an email, click this button for FLEET to send you a new email.
15. Click “Don’t have an account? Sign up now!” to create your new account.
16. You will need to submit the registration code listed on the Download FLEET page. Currently, the code is: fleetrocks2018

17. A couple requirements for creating your account:
    a. User names can only consist of upper case letters (A-Z), lower case letters (a-z), numbers (0-9), and _ (underscore).
    b. You will need to access a verification email address before you can continue with FLEET. Be sure you can access the email account you give here.

c. You can start a new Organization or join an existing Organization. The list of organizations are maintained at http://www.navalengineers.org/STEM-FLEET/Orgs. If you want to add your organization, just email us at fleet@navalengineers.org.

18. You will receive an email with instructions on how to validate your account.
19. After you validate your account, you can log into FLEET.

Error Explanation: Login Error



Fix: Open the email account you used to create a FLEET account. Look in you Inbox and Junk folders for an email from noreply@navatekfleet.com.

NAVIGATING FLEET

20. The first screen gives you two choices, Quick Play and Mission Headquarters.
    a. **Quick Play** is great for your first time or if you want to gather data on different ship designs without budget considerations.
    b. **Mission Headquarters** is where you select a mission. Missions have budget, weight tolerances, different hull designs, etc. Please note that you can still access the relevant tests when you take your ship out to sea. (See Mission Overview section for more details about each mission.)
21. The buttons in the upper right-hand corner are available in the navigation screens, dry dock and mission log.

	HQ will always return you to this initial screen, so you can choose a new mission or Quick Play mode.
	The Logbook shows accomplishments across different missions as well as data on all your saved ships.
	The user button has general help, logout and quit buttons. Also, you can adjust settings like the sounds and whether the game is in full-screen mode.

Figure 1. Opening screen of FLEET (called HQ).

22. As you go to the drydock, there is a cut screen. You can make all the text appear immediately by clicking the screen. You can hit escape to end this sequence.
23. The first time you enter the dry dock there will not be a ship. You can either:
    a. Design your ship starting with the hull by choosing parts in the + menu 
    b. Use a default ship by clicking the ship icon in the bottom right menu 
24. You can modify your ship by adding brand new parts to the ship. 
25. You can look at the parts currently on your ship. 
    a. If you want to get rid of a part, click the part then click the red trash can that appears in the bottom left corner. 
26. If you want to hold a special object aside, you can click hold. The object will be stored in the  button.
27. The Mission Checklist in the upper right-hand corner will change based on whether you selected Quick Play or a Mission.
    a. Requirements with a green check mark (✓) are met.
    b. Requirements with a red x (X) are not met. You will need to address this concern before you take the boat out on the water.
28. You can save your ship by clicking the save icon. You can name the files different names, so you can keep different designs for different missions. 
29. If you already saved a ship, you can click the open icon to retrieve that design. 

Hints: Tips for the Drydock

- Adjust view with mouse right click
- Look for a way to easily change your ship's displacement
- Ship properties highlighted in red often require design adjustments
- Design up to 3 different ships by using the save button
- You can mouse over any object and button for further explanation

Figure 2. Drydock interface with buttons described.

Table 3. Drydock Interface left-side buttons explained.

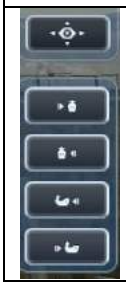
	This menu has all the types of parts and objects that are not on your ship. This menu is dynamic so if you already have an engine, the engine category will not appear here. Also, some parts have prerequisites, so you will not see the Helicopter menu until you have added a Helo Deck.
	This menu shows you what is already on your ship. If you want to change something, like the engine, you will go into this menu, select the current engine and then click the red trashcan to delete the current engine. You can also use this button to access the Ballast Tanks and add/remove water.
	The holding panel is where all items you saved for later use get stored. When you select a component on your ship, the bottom left button says “Hold”. If you click “Hold”, the component will leave your ship and be stored in this menu. This feature is particularly useful for testing small changes.
	All of these buttons change your view of the ship. You can look at the ship from either side, the bow, and the stern. This feature is particularly useful when the drydock is filling up with water because you can better inspect how buoyancy forces are interacting with the ship.

Table 4. Drydock interface right-side buttons explained.

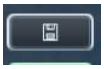
	This ship button will start you with a default ship. The default ship meets all the basic requirements for Quick Play testing. After you click this button, a message will appear asking if you want to overwrite the current ship. If you want to save your current ship, click “No”, click the Save icon (below). If you are fine with overwriting the current ship, then click “Yes.” This button is a quick way to get back to seaworthiness if your current design has insurmountable issues.
	All of your saved ships are stored here. You can save up to 3 different ships, so be sure to use meaningful names. These different ships could be for different missions or represent competing designs that you are testing.
	You can save your current ship design at any time by clicking this button. When you save your ship, it will be available any time you log on to FLEET.
	Click this button to take your button out on the water. After you click this Play button, the drydock will begin to fill up with water. You will need to be patient while this process occurs. If you made changes to your ship, you will need to do another Stability Test before the screen appears with available tests and missions.
	If you want to start from scratch, click the red trashcan button. The entire ship will be removed from the drydock and you can begin again by clicking the plus (+) button in the upper left-hand button.

Table 5. Drydock interface "Ship Properties" table explained.

(If you do not see this table, click the ship button () in the upper left corner so it is green.)

Ship Name	An open textbox for you to name your ship.
B	Beam – The widest part of the ship (from port side to starboard side)
CB	Center of Buoyancy – The three-dimensional point that is at the exact center of the volume that the hull is displacing.
CF	Center of Flotation – The three-dimensional point that is on the plane of the waterline. The two-dimensional area within the boat at the waterline is analyzed to find the exact center of the area.
CG	Center of Gravity – The three-dimensional point that is at the exact center of all the mass in the ship.
D	Depth – The distance between the waterline and the bottom of the ship.
Displacement	The amount of water that is moved by the hull of the ship.
GML	Longitudinal Metacentric Height – The longitudinal metacenter is a point far above the ship. The point is the intersection between a line that goes vertically through the Center of Gravity (CG) when the ship is at rest, and a line that goes vertically through the Center of Gravity (CG) when the ship goes over a small wave. The longitudinal metacentric height is the distance this point is from the Center of Gravity (CG). This measurement is useful to see what conditions would make a ship tip over while going up or down a wave.
GMT	Transverse Metacentric Height – Similar to the Longitudinal Metacentric Height (GML), but the second line is drawn from the Center of Gravity (CG) after a small wave tilts the ship from side to side. So, the transverse metacenter is the point of intersection between a vertical line through the Center of Gravity (CG) when the ship is at rest and a second vertical line that goes through the Center of Gravity (CG) after it is slightly rocked by a wave. The height is measured between the Center of Gravity (CG) and the transverse metacenter.
KML	Distance from Keel to Longitudinal Metacenter – Similar to the Longitudinal Metacentric Height (GML), but the distance is calculated from the bottom of the hull, rather than the Center of Gravity (CG).
KMT	Distance from Keel to Transverse Metacenter – Similar to the Transverse Metacentric Height, but the distance is calculated from the bottom of the hull, rather than the Center of Gravity (CG).

***** If you are interested in these terms, please consider the Fundamentals of Naval Architecture lessons that Professor Laura Alford recorded for the NEEC. These videos are available on our "For Educators" page and at: https://www.youtube.com/watch?v=Iml-lynj3bM&list=PLxHEvq_hK_PzM0HSlNIvSFrmiSgDC2sC1.

Table 6. Drydock interface "Hydrostatic Charts" table explained.[1]

(If you do not see this table, click the ship button () in the upper left corner so it is green.)

Transverse Metacenter	The red point of intersection between a vertical line through the Center of Gravity (CG) when the ship is at rest and a second vertical line that goes through the Center of Gravity (CG) after it is slightly rocked by a wave. The height is measured between the Center of Gravity (CG) and the transverse metacenter.

[1] You can see these points on the ship in the drydock, and in the logbook. In the logbook, you may need to click the dropdown menu on the right page and chose the option "Hydrostatic Charts." If you do not see this dropdown menu, look to the top of the screen and select the "Ships" tab.

Center of Gravity	The green dot on the three-dimensional representation of your ship that shows the exact center of the volume that the hull is displacing.
Center of Buoyancy	The green dot on the three-dimensional representation of your ship that shows
Center of Flotation	The green dot on the three-dimensional representation of your ship that shows the exact center of the area created by the cross-section of the ship at the waterline.
Keel/ Baseline	The absolute bottom of the hull represented by a yellow line.
Current Waterline	The dark-blue plane that shows where the surface of the water will touch the hull of the ship.
Design Waterline	The light-blue plane the designers of the hull intended the surface of the water to touch the hull of the ship. NOTE: If the Current Waterline and Design Waterline are very different then the ship may not behave as it was designed.

ADDING, MOVING, & REMOVING OBJECTS ON YOUR SHIP

You will spend a lot of time engineering objects on your ship. **Add** any object by clicking the New Object button () then navigating the dropdown menus. After you choose an object the Ship Deck Interface usually appears (see Table 6 for more details).

You may want to **move** an object already on your ship. First, click on the object or use the Ship Objects button to find the object (). Then, click the Move Object button (circled in green below) to bring up the Ship Deck Interface.

Error Explanation: Child Components

Fix: Objects on your ship are placed on other objects. For example, all the other objects are placed on the hull. If you delete the hull, then all its child components will also be deleted (the entire ship). You will also see this message if you delete the Deck House when there is a Radar Tower installed or if you delete the Helo Deck when there is a Helicopter.

If you want to **remove** an object from your ship, click on the object or use the Ship Objects button to find the object (). Then, click the red trashcan button in the "Edit component" window.

Sometimes you decide not to add a component after you already choose it. Simply hit the Escape key (labeled "ESC") to leave the Ship Deck Interface.

Table 7. Using the Ship Deck Interface to install objects on the ship.

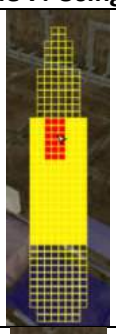
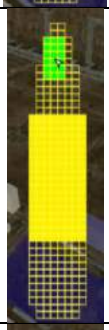
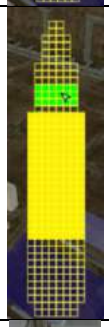
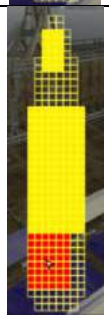
	If an object overlaps with an existing object, the new object will have a red area. Here a piece of cargo overlaps with the superstructure.
	If an object can be placed in that area, the new object will have a completely green area.
	You may rotate an object by pressing “R”.
	If an object partially overlaps with another object, the overlapping part of the new object will appear in red/the rest of the object will appear in green. Here a Helo Deck is partially overlapping with the Deck House.
	If an object partially overlaps with the side of the ship, the new object will appear in red. Here a Helo Deck is partially overlapping with the port side of the ship.

Table 7. Using the Ship Deck Interface to install objects on the ship.

	The Helo Deck can be placed on this part of the boat.

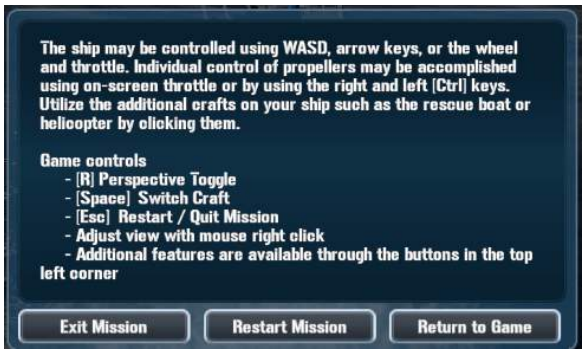
Some components are not able to be moved on the boat (e.g., rudder, propeller, etc.). For these objects, just click on the Green Check button to accept the location of the object. Other objects, like helicopters and the Radar Tower, have their positions determined by other objects. Below the helicopter must be placed on the Helo Deck. Similarly, the Radar Tower will always appear on top of the superstructure.

HOW TO OPERATION BOATS AND SHIPS IN TESTS AND MISSIONS

You can always hit the Escape Key (labeled "Esc") or click the Question Mark icon for help when you are at sea. The basic controls are in Table 3. Use the up and down arrow keys to change the speed of the boat and use the left and right arrow keys to turn the boat in either direction.

Table 8. The effects of every key on steering the boat and which part of the interface is affected.

Button	Button's Effect	Interface affected
Up ↑	Increases the speed by moving the throttle up. (You can also use the W key.)	
Down ↓	Decreases the speed by moving the throttle down. The boat can go backwards! (You can also use the S key.)	
Left ←	Steers the boat to the left, or port, when the boat is going forward. (You can also use the A key.)	
Right →	Steers the boat to the right, or starboard, when the boat is going forward. (You can also use the D key.)	
Escape (Esc)	Pulls up the dialogue box below. Users can exit the mission, restart the mission, or return to the mission.	
R	The R key allows the user to switch between views from the front or back of the boat or ship.	
Space	Hit the space bar to change which craft you are controlling. For example, if you are in a rescue boat, you can hit the space bar to begin driving the main ship again.	
CTRL+Click (Mac) or Right Click (Windows)	On Macs, hold Control and click, to adjust the view point to any direction you want. Similarly, on Windows machines, right click and hold to move your vantage point around.	
Mouse click	Click directly on rescue boats and helicopters to make the launch button appear.	



TESTS

The tests are quick ways to gather data on various aspects of your ship.

Stability Test

This test ensures your ship is safe for sailors. A wave is generated in the dry dock that will see whether the ship is stable enough for the open ocean. You will need to complete this test any time you change your ship.

Outcomes: Your ship passed the stability test. OR
Your ship failed the stability test and …

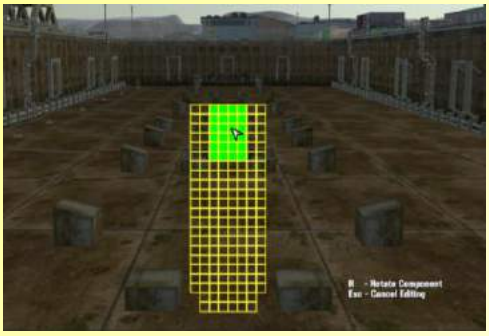
If you fail the test, read the message carefully. The second half of the text will explain where the ship is leaning

Speed Test

The goal is to simply cross the finish line (between the two buoys) as quickly as possible. This test is probably the most useful for data collection because users can directly replicate the test repeatedly as they improve the ship's design.

Error Explanation: Common Stability Issue

Fix: The Engine Interface shows only half the boat. For most ships, the engine will be placed in the very center of the boat which is the top of the interface. If you are having issues with the Stability Test, try to move the engine into the center of the boat as shown below.



Outcome: Time in minutes and seconds to go 0.26 nautical miles.

Maneuverability Test

Navigate the course as quickly as possible. This course is designed to ensure you ship is fast and can turn well in the open ocean. If you miss any buoy, you must go back and pass the buoy on the correct side.

Outcome: Time in minutes and seconds to go approximately 0.4 nautical miles.

Hints: Naval Terms

- **Stern** – back of the ship
- **Bow** – front of the ship
- **Port** – When looking at the bow, the left side of the ship
- **Starboard** – When looking at the bow, the right side of the ship
- **Displacement** – Weight of the water moved by the ship (Archimedes' Principle states the displacement equals the weight of the ship).
- **Drydock** – place to work on ships out of the water.

Rescue Practice

Rescue two mariners waiting for you on either side of the buoy. You can use your ship, rescue boats, and/or helicopters to save the two mariners. Although you may not be able to see them at the beginning, there are two people equal spaced from the buoy. In the beginning, you may be going too fast to rescue either person on your first attempt, but then you can turn around or launch a rescue craft.

Outcome: Time in minutes and seconds to rescue two mariners that are approximately 0.18 nautical miles away.

This practice tests both the boat and the user. Use it for practice before attempting the Search & Rescue mission.

MISSION OVERVIEWS

Below you will find more information about the Search & Rescue, AUV Retrieval, and Supply and Logistics missions. Consider the requirements for each mission carefully. The task requirements will influence your decision making and design. Most people find that the missions take 15-20 minutes in the beginning, and then the time decreases as designs improve.

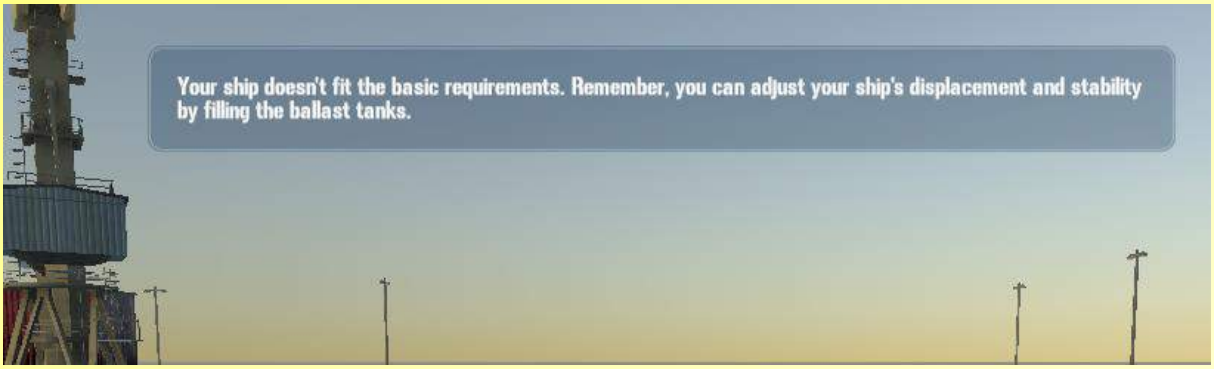
Each mission is limited by a budget, ship displacement requirements, and the ship's deck space. The budget changes each mission, so be sure to find the right combination of equipment that does not exceed the given budget. Different ships have different displacement requirements, and you may need to use the Ballast Tanks to ensure the ship has sufficient weight. Because space on the ship's deck is limited you must consider the usefulness of each addition, while also being aware of its impact on the stability of the ship.

If you want to change your mission, return to the Mission Headquarters by selecting the HQ button (

) in the upper right-hand corner. Then, you can pick a mission from this screen and click the green play button ().

As new missions come online, check back here for more details.

<u>Error Explanation:</u> Ship's Displacement



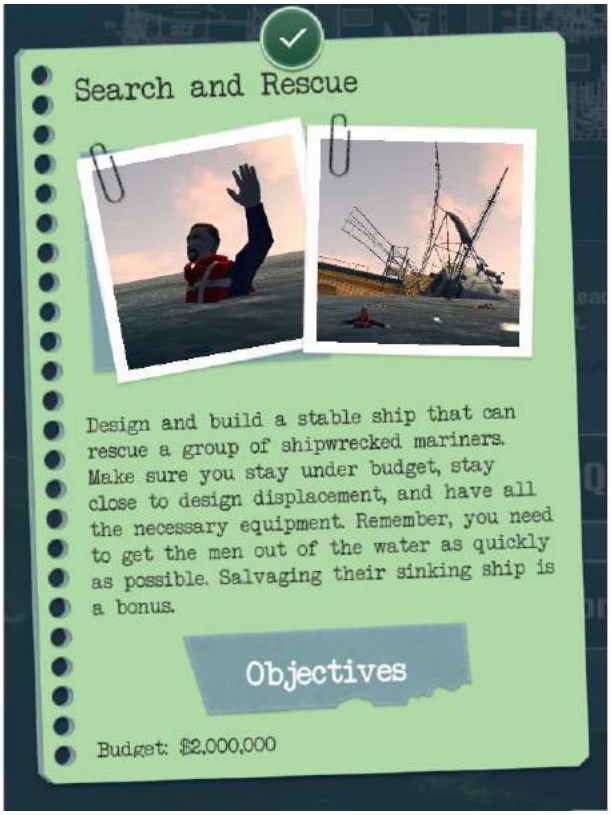
<u>Fix:</u> The displacement is the weight of the water moved by your ship. Ship's must displace enough water to be stable, but not too much so that they are easily sunk. Mostly likely, you will need to adjust the weight of the ship by changing the engine or the water in the Ballast Tanks (see "Ballast Tanks" for more information.

SEARCH AND RESCUE

The Search and Rescue Mission is set in the treacherous, cold waters of the Pacific off the coast of California. You will design a ship capable of conducting a successful search and rescue of men missing from the wreck of a fishing vessel. Important things to note in the design phase include: ship stability and ship arrangement, whereas the operation phase will focus on systematic searching.

Additional Requirements: The total budget is $1,515,000, which will force you to make some hard choices. You will also need to add rescue equipment to your boat. The Structure menu has a button for "Cargoes". You will need to add one of these cargoes to your ship:

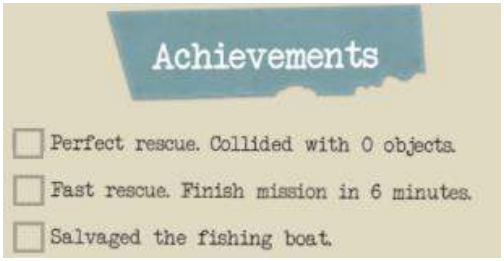
- ⚓ Rescue Equipment
- ⚓ Advanced Rescue



The Mission: You rescue people by pulling alongside of them in your ship or rescue boat long enough for a red rectangle to appear above the sailor's head, and then turn to green. You may also choose to use a rescue helicopter to drop a rescue basket to sailors when you are directly overhead of the sailor. In addition, you may choose to bring Pump Equipment and salvage the ship before it sinks.

You will need to use Communications Equipment (Comms) and your knowledge of the sea to locate and rescue the shipwrecked sailors. This will require you to generate an efficient search pattern and use the equipment to quickly save the missing mariners. Your choices may vary depending on the weather conditions.

Completion time, collisions with debris, and ship salvage at the completion of the mission will all factor into scoring.



AUV RETRIEVAL

The Autonomous Underwater Vehicle (AUV) Retrieval Mission takes place at night in dense, foggy conditions. You will design a ship capable of recovering these vehicles where ever they appear. Since the vehicles are unmanned, they can surface anywhere – you will have to use a radar system to find them. Out on the water, it is critical to head directly for the AUVs.

While you design your ship, be sure to keep an eye on its stability. The tall radar towers can help pinpoint the location of the AUV's faster, but they are also much less stable designs. Every design decision will affect how your ship cruises at sea.

Additional Requirements: The total budget is $2,120,000, which is higher than most missions because you will need special communications equipment (found under **Comms**) as well as a **Rescue Boat**. To retrieve the AUVs from the water you must bring the cargo called:

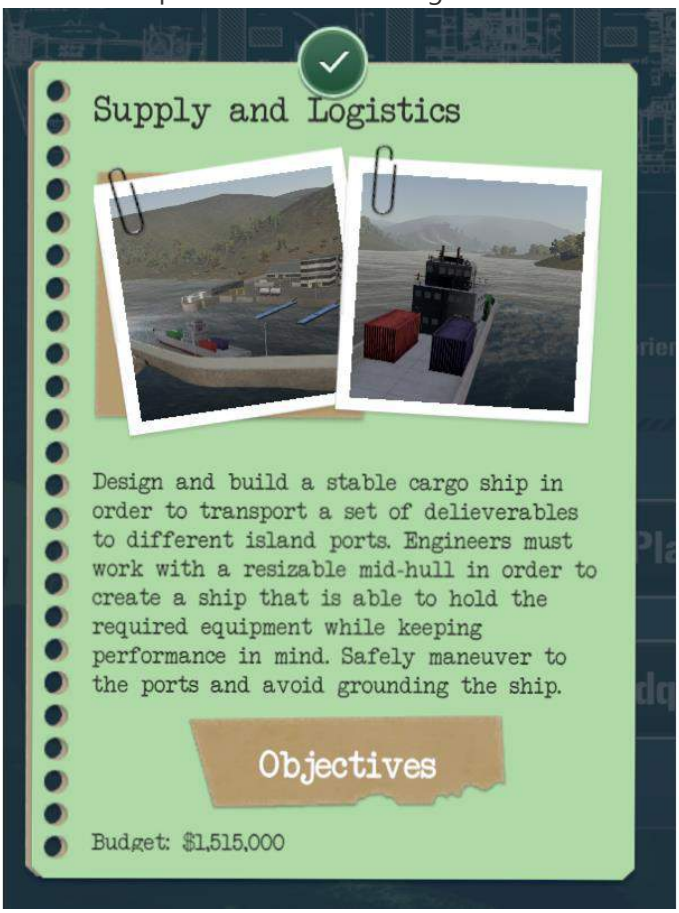
⚓ AUV Retrieval

The Mission: Locate and retrieve three AUVs from the ocean. Your Comms will help you identify their locations so you can quickly pull alongside each AUV in the ship or rescue boat. You have retrieved the AUV as soon as the rectangle above it turns from red to green.

Fast mission completion time and avoiding colliding with the AUVs will get you the best score. So, speed (safely) ahead!

In the Supply and Logistics Mission, you must deliver essential military cargo to three different ports. This mission is the first time that you can alter the length of your hull. Simply adjust the length in the dropdown from 1 to 9 sections, then build the bow and stern.

Ships with different lengths have different top speeds, but only if the engine and propellers are powerful enough. Also, consider that the design of your ship will affect maneuverability. You will have to navigate the channels between islands and sandbars to make it to port safely and without running aground. Keep your ship safe!



A map is available to help plan your route between ports – and driving up to the channel markers outside each port will help you automatically navigate to your next destination.

Additional Requirements: The total budget is 1,515,000, which includes the cost of your four Cargoes:

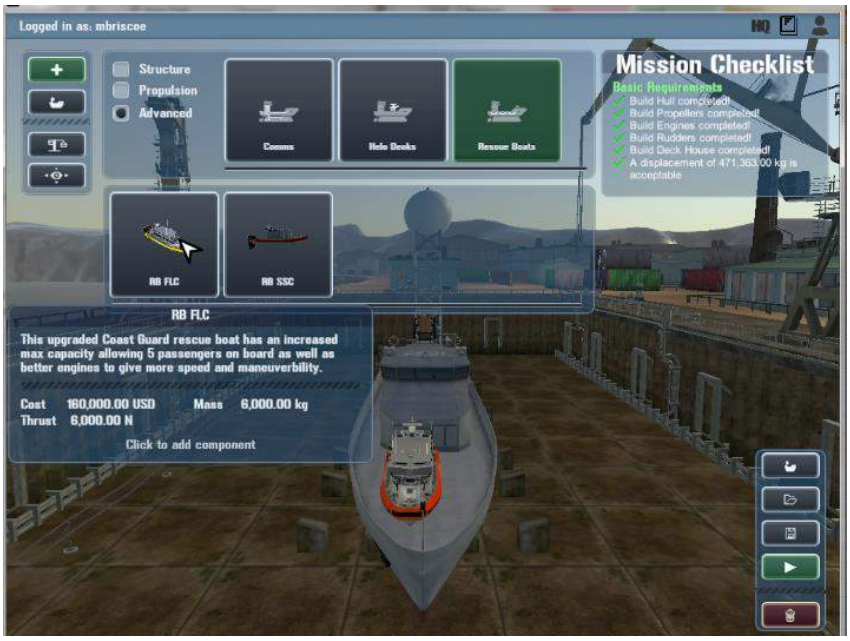
- ⚓ Rescue Equipment (x2)
- ⚓ Pump Equipment
- ⚓ Helicopter Fuel

The Mission: Deliver cargo to the three ports as quickly as possible. Be sure to test you ship design is fast in the Speed Test to gain bonus points!

Fast mission completion time while avoiding collisions and running aground will get you the best score.

INTRODUCTION TO THE FLEET VESSELS

All vessels are in the "Advanced" menus. Rescue Boats is at the end of the list (shown right). Helicopters can be added after the Helo Deck is installed. The Helo Deck is the middle option in the graphic to the right. After you add the Helo Deck to your ship, then you can add the helicopters described below.



On the water, click directly on the boat or helicopter to launch it.

Rescue Boat SSC

The red rescue boat, RB SSC, is cheaper, but less powerful than the other boat. The maximum capacity of the boat is four additional people. If you choose to use this boat to pick up all five people in the Search & Rescue mission, then you will need to make two trips.

Table 9. Buttons and controls for the rescue boats.

	Use the mouse to **click directly** on the helicopter to launch it.
	Click on the boat to make this button appear. After it appears on the left side of your screen, you can click the button to **launch** the boat if the ship is going 10 knots or less.
CTRL+Click (Mac) or Right Click (Windows)	Change the view angle to see different parts of your boat and its surroundings.

Rescue Boat FLC

The yellow rescue boat, RB FLC, is more expensive and more powerful than the other boat. This craft also holds five additional people. You can pick up all the sailors in the Search & Rescue mission in one trip.

Hints: Locating Rescue Vessels

In the beginning, you may want to locate rescue boats and helicopters on the back of the ship so that they are easier to click. If they are on the front, you can still launch them, but you need to adjust the view by right clicking the screen.

Main Ship (Cutterform or Cargo Hulled Ships)

Your main ship is also a useful vessel. You can rescue sailors and retrieve AUVs if you have the correct equipment on board. The ship also navigates the heavy seas the best given its weight and design.

Rescuing a sailor in a RB FLC	Retrieving an AUV in the main ship
	

Helicopter Overview

Helicopters are controlled very similar to boats, but they move through the air which leads to some differences. You will have to hold down the up key to move forward. The arrow keys will adjust the tail of the helicopter, but it takes time for the main propeller to move enough air to pull the helicopter forward.

Another critical difference is that helicopters can crash causing mission failures. We suggest not hitting a button while the helicopter takes off because most helicopter crashes are caused by hitting the deck house or communication tower during takeoff. You can also run into buoys, the dry dock, and other objects to cause the helicopter to crash. Additionally, you may run out of fuel in the helicopter which can also cause a crash.

Table 10. Buttons and controls for the helicopter.

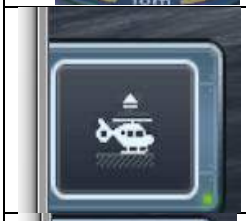
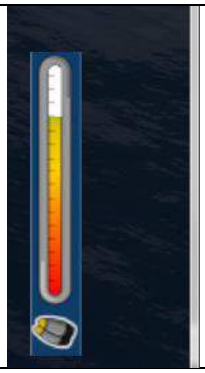
	Use the mouse to **click directly** on the helicopter to launch it.
	Click on the helicopter to make this button appear. After it appears on the left side of your screen, you can click the button to **launch** the helicopter if the ship is going 10 knots or less.
	When you are over top of a sailor, this button will appear. Click it to drop the **rescue** equipment to save them.
	When you are over top of the Helo Deck, this button will appear. Click it to **land** the helicopter back on the ship. (You can take off again by clicking directly on the helicopter again.)

Table 10. Buttons and controls for the helicopter.

	The helicopter's **fuel gauge** is in the lower right-hand corner of the screen. Be sure that you do not run out of fuel! If you bring Helicopter Fuel as cargo, then the helicopter will fuel up each time you land back on the ship's deck.
CTRL+Click (Mac) or Right Click (Windows)	Change the view angle to see different parts of your helicopter and its surroundings.

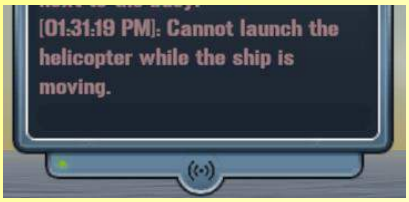
DRC 200 Helicopter

The red helicopter, DRC 200, is smaller, lighter, slower and cheaper. The standard Coast Guard helicopter only holds two additional people and weighs 4,500 kilograms. It travels 35 knots and only costs $300,000.

DRC 500x Helicopter

The yellow helicopter, DRC 500x, is larger, heavier, faster, and more expensive. This upgraded helicopter can hold four additional people and weights 5,000 kilograms. It travels 55 knots and costs $350,000.

Error Explanation: Cannot launch while the ship is moving



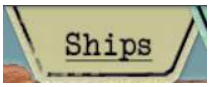
Fix: The ship must be moving slower than 10 knots for you to launch the helicopter or the rescue boats. Slow down by hitting the down arrow (or the D key) to reverse the engines.

Hints: Getting the helicopter over top of the sailors

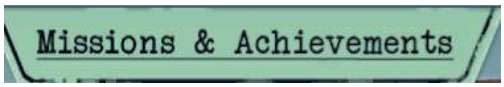
It will take practice to adjust to the perspective on the helicopter. You may feel like you have flown pass the sailor in the water when you are actually overhead. Adjust the view for a better view.

LOGBOOK, RECORDS, AND COMPETITIONS

The logbook holds all your high scores, saved ship designs, and connects you to the leaderboards for the country and your school. You can access the logbook by clicking the book icon in the upper right corner ( ) from the drydock or HQ. There are two primary tabs at the top:



The Ships tab connects you to the properties, charts, and records for each ship you have saved.



The Missions & Achievements tab shows your successes and the leaderboards for your organization and the entire FLEET community.

Ships tab

The ships tab in the logbook screen shows you four sets of information for each ship you have saved:

1. **Components:** The number and cost of every component on your ship. This is a great tool for collecting data while perfecting your design.
2. **Properties:** The same statistics that are listed in the hydrostatic chart in the drydock.
3. **Hydrostatics:** Shows the hull and the hydrostatic properties. This interface can be rotated by right clicking and moving the mouse. Some users feel this display is easier to interpret because it is a simpler display than the full drydock display.
4. **Sea Trial Scores:** Shows the top speed reached by each ship.

Missions & Achievements tab

The missions are listed on the left page. Check marks indicate whether you have attempted each of the missions. On the right page, you can change the weather for each mission to get data on each weather/mission combination that is possible.

Your highest score is listed in the middle of the right page as “Environment Score”. Click the “View Leaderboard” button to compare your scores with the high scores for that weather/mission combination. Note that the leaderboard has a checkbox at the bottom “Filter by player organization”. When this box is checked, you will only see scores from your school or organization. When this box is not checked, you will see the top scores from all FLEET users across the country. Try to set a high score to become listed on the FLEET Hall of Fame!

Figure 3. The FLEET Hall of Fame is always open for business (link).

CURRICULA DESCRIPTIONS

The middle- and high-school curricula start with lessons that introduce concepts through hands-on engineering and technology-enhanced lessons. The middle school curriculum relies on a variety of websites ( ) and YouTube videos ( ), while the high-school curriculum uses YouTube videos ( ), Flash animations ( ), and Java applets ( ). Students work on these concepts in groups. This group work often requires sketching designs or notetaking which can be done electronically or by paper and pencil ( ). Students apply these lessons in the FLEET simulator ( ). And, you can decide whether to create prizes for the FLEET Final ( ).

Many lessons have hands-on activities where students work with "boats" in water ( ). We suggest having several types of recyclables handy along with scissors and tape. The boats will need to float in enough water that they can move freely. A science classroom with sinks is great. Containers filled with water before class also work well. See below for pictures of student-created boats.

Figure 4. A Fleet of "Boats"

Currently, all lessons are adaptable from 45 minutes ( ) to 1 hour, 30 minutes ( ). Lessons describe one possible flow for a 45-minute lesson, and a second possible flow for a class lasting 90-inutes class. Note that everything is suggested; you can change this pacing, add some supplemental ELA resources, use your own classroom processes (e.g., science notebooks) to make these lessons work for your students.

The following sections overview each lesson plan in the two curricula. Alignments are provided to the NGSS and Common Core standards. Additional state alignments can be found at the curricula home pages:

- Middle School: http://www.navalengineers.org/STEM-FLEET/For-Educators/Middle-School-Curriculum-Club
- High School: http://www.navalengineers.org/Students/FLEET/For-Educators/High-School-Curriculum-Club

In addition, to these units there are Informational Texts and Speaking & Listening materials at:

http://www.navalengineers.org/STEM-FLEET/For-Educators/ELA

These materials are grade-level aligned and have literacy-aligned questions that require students to synthesize main ideas, cite important evidence, use academic vocabulary, and recall key details.

HIGH SCHOOL CURRICULUM OVERVIEW

1 What's our process? **Time** to	Students will learn about engineering design process, and then work together to create their own engineering design process. This process will be used every time they engineer solutions in future activities.	  **Optional**:   Mass DOE Eng. Process  	Learning/Creating/Using Engineering Design Process (**HS-ETS1-2, 1-3, 1-4**), Representing balanced forces (**HS-PS2-1**), Discussing/Presenting information in diverse media (**CCS-ELA.SL.1,2,4**) **Optional**: Reading informational texts with aligned questions (**CCS-IT.1,2, &4**)
2 Steady!! Steady!! **Time** to	Students will use their engineering design process to create the most stable ship possible. They will use this knowledge while becoming familiar with **FLEET** and **FLEET** terminology.	    *USS Detroit* handout **Optional**: 	Analyzing dynamic forces (**HS-PS2-1**), Using Engineering Design Process (**HS-ETS1-2, 1-3, 1-4**) Presenting results (**CCSS-ELA SL.4, SL.5, SL.6**) **Optional**: Creating vocabulary word wall (**CCSS-L IT.4**); Using video to explore concepts (**CCSS-L SL.2**)
3 The Force is Strong in your ship! **Time** to	First, students review Newton's Three Laws with the help of some NFL stars. Then, students take that knowledge to **FLEET**'s Speed Test. The fastest ship has truly mastered these forces!	   	Exploring, diagramming forces (**HS-PS2-1**), Using Engineering Design Process (**HS-ETS1-2, 1-3, 1-4**), Students learn from videos and share understandings in class and group discussions (**CCSS.SL.1&2**)

HIGH SCHOOL CURRICULUM OVERVIEW

4 Record that Force. A day of data! **Time** to	Students work with forces on a traditional ramp simulator. They draw free-body diagram and answer questions about the forces shown. Then, students apply this knowledge to **FLEET**'s Speed Test.	 **Optional**: 	Exploring, diagramming forces (**HS-PS2-1**) **Optional**: Using Engineering Design Process (**HS-ETS1-2, 1-3, 1-4**)
5 Designing for Buoyancy **Time** to	Students will use an engaging simulator of buoyancy forces to explore how volume, density and buoyancy force are related, especially for materials of two or more materials. Then, students will test the ideas in **FLEET**'s Maneuverability Test. Multiple possibilities for closing activities.	  **Optional:**  	Exploring, diagramming forces (**HS-PS2-1**), Using Engineering Design Process (**HS-ETS1-2, 1-3, 1-4**) **Optional**: Presenting results (**CCSS-ELA.SL.4, SL.5, SL.6**)
6 Search and Rescue **Time** to	A day to thoughtfully apply design principles to designing a **FLEET** vessel for a specific purpose.	  **Optional:**  	Using Engineering Design Process (**HS-ETS1-2, 1-3, 1-4**) Presenting results (**CCSS-ELA SL.4, SL.5, SL.6**) **Optional**: Learn from videos (**CCSS.SL.2**)
7 **FLEET** All-Star Break **Time** to	A day to test out all the ships, boats, and helicopters in the game. A low-stress application of the engineering and science concepts from the previous lessons.	 **Optional:**  	Using Engineering Design Process (**HS-ETS1-2, 1-3, 1-4**)

HIGH SCHOOL CURRICULUM OVERVIEW

8 Master your **FLEET**! (Part 1) **Time** to	Students are creating design solutions to address the **FLEET** mission using their very own engineering design process. Just two weeks until the Finals! (Note: The same lesson plan is used for lessons #8 and #9.)	 **Optional:** 	Analyzing dynamic forces (**HS-PS2-1**), Using Engineering Design Process (**HS-ETS1-2, 1-3, 1-4**) Work together to solve problems (**CCS-ELA.SL.1**) using data provided by the various FLEET interfaces (**CCS-ELA.SL.2**)
9 Master your **FLEET**! (Part 2) **Time** to	Students continue finding design solutions to address the **FLEET** mission using their engineering design process. The Finals are next week!	 **Optional:** 	Analyzing dynamic forces (**HS-PS2-1**), Using Engineering Design Process (**HS-ETS1-2, 1-3, 1-4**) Work together to solve problems (**CCS-ELA.SL.1**) using data provided by the various FLEET interfaces (**CCS-ELA.SL.2**)
10 **FLEET** Awards **Time** to	The final day! A final day for competitions and awards. The lesson provides many options or make your own!	  **Optional:**  	Using Engineering Design Process (**HS-ETS1-2, 1-3, 1-4**)

FLEET PRIVACY POLICY

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Information on how Google Analytics is used and its privacy policy are available on this link: https://www.google.com/analytics/terms/us.html

4. Website Navigational Information

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Cookie name	Purpose	Type of cookie	Expiry
.ASPXANONYMOUS	Allows connection without authentication	Required	At the end of the session
__RequestVerificationToken	Anti-forgery cookie that blocks the transmission of unauthorized data to the website ("Cross-Site Request Forgery").	Required	At the end of the session
dnn_IsMobile	Identifies the type of connected device	Required	At the end of the session
language	Identifies the user's language	Required	At the end of the session

.DOTNETNUKE	Identifies the user if authenticated on the website	Required	At the end of the session or after 20 hours if the "Remember me" option is activated
EU_Optin	Identifies whether the user has read and consented to ASNE's cookie policy	Required	1 year
sessionID	This is a unique identifier for a logged in user	Required	At the end of the session
_utma, _utmb,_utmc,_utmt,_utmz	Used by Google Analytics to collect, aggregate and analyze data in order to better understand how the site is used and improve site performance.	Performance	At the end of the session

Any other cookies generated by www.navalengineers.org and not present in this table are functional or targeting cookies.

Third party cookies

ASNE uses services offered by Google and Google Analytics to collect, aggregate and analyze data in order to better understand how the site is used. ASNE uses these cookies to collect anonymous and aggregated data for a limited time. The data is used, for example, to monitor and analyze site use, improve its functions and more accurately choose content and graphic design, in order to meet visitors' expectations.

Web Beacons

ASNE uses Web beacons alone or in conjunction with cookies to compile information about Customers and Visitors' usage of the Society's Websites and interaction with emails from the Society. Web beacons are clear electronic images that can recognize certain types of information on your computer, such as cookies, when you viewed a particular Website or Service tied to the Web beacon, and a description of a Website or Service tied to the Web beacon. ASNE uses Web beacons to operate and improve the Society's Websites, Services and email communications.

Log Files, IP Addresses, URLs and Other Data

As is true of most Websites, we gather certain information automatically to analyze trends in the aggregate and administer our Websites and Services. This information may include your Internet Protocol (IP) address (or the proxy server you use to access the World Wide Web), device and application identification numbers, your location, your browser type, your Internet service provider and/or mobile carrier, the pages and files you viewed, your searches, your operating system and system configuration information, and date/time stamps associated with your usage. Due to Internet communications standards, when you visit or use the Society's Websites and Services, we automatically receive the URL of the website from which you came and the website to which you go when you leave our Website. This information is used to analyze overall trends, to help us improve our Websites and

Services, to track and aggregate non-personal information, and to provide the Websites and Services. For example, ASNE uses IP addresses to monitor the regions from which Customers and Visitors navigate the Society's Websites. ASNE also collects IP addresses from Customers when they log into the Services as part of the Society's "Identity Confirmation" and "IP Range Restrictions" security features.

Social Media Features and Single Sign-on

The Society's Websites may use social media features, such as the Facebook "like" button ("Social Media Features"). These features may collect your IP address and which page you are visiting on the Society's Website, and may set a cookie to enable the feature to function properly. You may be given the option by such Social Media Features to post information about your activities on the Society's Website to a profile page of yours that is provided by a third party social media network in order to share with others within your network. Social Media Features are either hosted by a third party or hosted directly on the Society's Website. Your interactions with these features are governed by the privacy policy of the company providing the relevant Social Media Features. ASNE also allows you to log in to certain of our Websites and Services using sign-in services such as Facebook Connect. These services will authenticate your identity and provide you the option to share certain personal information with us such as your name and email address to pre-populate our sign-up form.

Do Not Track

Currently, various browsers — including Internet Explorer, Firefox, and Safari — offer a "do not track" or "DNT" option that relies on a technology known as a DNT header, which sends a signal to Websites' visited by the user about the user's browser DNT preference setting. ASNE does not currently commit to responding to browsers' DNT signals with respect to the Society's Websites, in part, because no common industry standard for DNT has been adopted by industry groups, technology companies or regulators, including no consistent standard of interpreting user intent. ASNE takes privacy and meaningful choice seriously and will make efforts to continue to monitor developments around DNT browser technology and the implementation of a standard.

5. Public forums, refer a contact, and customer testimonials

ASNE may provide bulletin boards, blogs, or forums on the Society's Websites. Any personal information you choose to submit in such a forum may be read, collected, or used by others who visit these forums, and may be used to send you unsolicited messages. ASNE is not responsible for the personal information you choose to submit in these forums.

ASNE posts a list of Customers and testimonials on the Society's Websites that contain information such as Customer names and titles. ASNE obtains the consent of each Customer prior to posting any information on such a list or posting testimonials.

6. Sharing of information collected

Service Providers

Unless described in this Privacy Statement, ASNE does not share, sell, rent, or trade any

information with third parties for their promotional purposes.

ASNE Affiliates
The Society may share Data about ASNE Customers with ASNE Affiliates for customer support, technical operations and account management purposes.

Business Partners
From time to time, ASNE may partner with other companies to jointly offer products, services, or programs. If you purchase, specifically express interest in, or register for a jointly–offered product, service, or program from or through ASNE, the Society may share Data about ASNE Customers collected in connection with your purchase or expression of interest with our partner(s). ASNE does not control our business partners' use of the Data about ASNE Customers that we collect, and their use of the information will be in accordance with their own privacy policies. If you do not wish for your information to be shared in this manner, you may opt not to purchase or specifically express interest in a jointly offered product or service.

ASNE does not share Data about ASNE Attendees with business partners unless the attendee explicitly grants consent for us to do so during the registration process. If you consent to sharing your information, it will be subject to the business partners' respective privacy statements.

Third Parties
Section 4 of this Privacy Statement, Website Navigational Information, specifically addresses the information we or third parties collect through cookies and web beacons, and how you can control cookies through your Web browsers. ASNE does not share any additional information with third parties without prior written consent (unless it is Compelled Disclosure).

Billing
ASNE uses a third-party service provider to manage credit card processing (although no FLEET resources require payment). This service provider is not permitted to store, retain, or use Billing Information except for the sole purpose of credit card processing on the Society's behalf.

Compelled Disclosure
ASNE reserves the right to use or disclose information provided if required by law or if the Society reasonably believes that use or disclosure is necessary to protect the Society's rights and/or to comply with a judicial proceeding, court order, or legal process.

7. International transfer of information collected
The Society stores Data about ASNE Customers and Data about ASNE Attendees in the United States. To facilitate ASNE's global operations, the Society may access such information from around the world. This Privacy Statement shall apply regardless of which

country the Data is accessed from by the Society.

8. Communications preferences

ASNE offers Visitors, Customers, Members, and Attendees who provide contact information a means to choose how the Society uses the information provided. You may manage your receipt of marketing and non-transactional communications by clicking on the "unsubscribe" link located on the bottom of the Society's marketing emails. Additionally, you may unsubscribe here or by contacting us using the information in the "Contacting Us" section below.

9. Correcting and updating your information

ASNE may retain your information for a period of time consistent with the original purpose of collection. For instance, we may retain your information during the time in which you have an account to use our Websites or Services and for a reasonable period of time afterward. We also may retain your information during the period of time needed for ASNE to pursue our legitimate business interests, conduct audits, comply with our legal obligations, resolve disputes and enforce our agreements.

You may request to review, correct, delete or otherwise modify any of the personal information that you have previously provided to us through the Society's Websites and Services. If you have registered for an account with ASNE, you may generally update your user settings, profile, organization's settings or event registration by logging into the applicable Website or Service with your username and password and editing your settings or profile. To update your billing information, discontinue your account, and/or request return or deletion of Your Data associated with your account, please contact your account representative or the customer service team for the applicable Service. For other requests to access, correct, modify or delete Your Data, please review the "Contacting Us" section below. Requests to access, change, or delete your information will be addressed within a reasonable timeframe.

10. Customer Data

ASNE acknowledges that you have the right to access your personal information. If you wish to exercise any rights you may have to access, correct, amend, or delete such data, please contact fleet@navalengineers.org.

11. Security

ASNE uses robust security measures to protect Data about ASNE Customers and Data about ASNE Attendees.

12. EU Data Subject Rights

If you are a resident of the EU, you have the following additional rights regarding use and access to your data (as specified under the GDPR).

- Right of access. You may request a copy of the information that we have on you by sending a request to fleet@navalengineers.org. We will reply with seven days and provide a copy of the information within thirty days.

- Right of rectification. You can update your information at any time by logging into our website and updating your profile. If there is information on your profile that you cannot edit and wish to have it changed, please send an email to fleet@navalengineers.org. We will reply with seven days and correct any incorrect information within thirty days.
- Right to be forgotten. Under certain circumstances, you can request that we delete your data from our records. The decision on whether we can delete your data is based on factors including compliance, record keeping, and other restrictions that ASNE does not have control over. To request to have your data deleted, please send an email to fleet@navalengineers.org. We will reply with seven days and accommodate your request within 30 days if we can do so. If we cannot delete or "anonymize" your data, we will provide you the reasons for doing so, and you have a right to object to our reasoning.
- Right to restriction of processing. You can grant or remove consent for processing of your data at any time by logging into the sight and updating your preferences.
- Right of portability. If you would like a copy of the data that we have on you in a machine readable format, please send an email to fleet@navalengineers.org. We will reply with seven days and provide a copy your data within thirty days.

13. Consent

By consenting to this privacy notice you are giving us permission to process your personal data specifically for the purposes identified.

14. Contacting us

Questions regarding this Privacy Statement or the information practices of the Society's Websites and Services should be directed via email to fleet@navalengineers.org or by mail at the following address:

American Society of Naval Engineers – FLEET Privacy
1452 Duke St
Alexandria, VA 22314

APPENDIX A. FREQUENTLY ASKED QUESTIONS

I understand the software is free, but can you financially help us start a FLEET/STEM Club?

Yes! Our $1,000 implementation grant program is still open. Please download an >application, complete it, then email it back to fleet@navalengineers.org. For more information, please see this 2-minute explanation of the FLEET Grant program.

What exactly is FLEET?

FLEET is an **engineering video game** at its core. We have developed curricula that teach the scientific forces and engineering process using collaborative, hands-on activities. And, FLEET is a growing community of users sharing experiences and competing for high scores.

How do I download FLEET?

FLEET can be downloaded from fleetengineering.org (click "Download FLEET") or may have been provided to you as an executable. Download requires an account with the American Society of Naval Engineers. Be sure to provide a valid email address and accurate school/organization info since this will be used to create your FLEET game profile automatically.

Please uninstall any previous version of FLEET before installing a new version.

What does my computer need to run FLEET?

System: The game application is designed to run on Windows. The minimum system requirements for using the game software are:

- Internet Connection: Cable or DSL
- Operating System: Windows 7+
- Processor: 2-GHz 32-bit or 64-bit
- System RAM: 4GB
- Video RAM: 1GB
- Screen Resolution: 1024×768 pixels
- Graphics Card: DirectX 9.0c compatible card
- Latest Version: July 8, 2018

Internet: FLEET requires internet access to check for updates to the game before launching, to log in to your account, and to save your designs and scores to the server. The game needs to be able to access the server though your internet connection. Please allow access to our server:

- the domain: 159.203.84.155
- the server address: 159.203.84.155:1337/parse

What do I do with error messages: "The server is blocked or under maintenance. Please try again later." or "Connection to the server could not be established."?

FLEET requires access to the FLEET server. Your boat is stored on the FLEET server, so this requirement allows students to access their boats from any computer. If you encounter this error, then chances are your IT department will need to allow access to the FLEET server. You can check if this is the error by opening a browser and pasting "159.203.84.155:1337/parse", then hit enter. You should see "{"error":"unauthorized"}". If you see something else, then you will need to ask your IT help to whitelist the domain and server address:

- the domain: 159.203.84.155
- the server address: 159.203.84.155:1337/parse

What do I do if FLEET does not complete its initial download?

Most likely this error is another issue with a local firewall. You can check if this is the error by opening a browser and pasting "159.203.84.155:1337/parse", then hit enter. You should see "{"error":"unauthorized"}". If you see something else, then you will need to ask your IT help to whitelist the domain and server address:

- the domain: http://www.fleet-engineering.org/

How do I log into FLEET?

Your account for the game is different than the account you used to download the game. You will create your own FLEET account after you download the game. You will need to enter the code “fleetrocks2018” to create a new account. Look for an email from noreply@navatekfleet.com with additional information about your new username and a confirmation link.

Remember, usernames and passwords are case sensitive.

Is there a forum for questions/answers?

Yes! We have a users' forum that has discussion boards for technical issues, gaming questions, and places to show off your engineering successes. The Forum is available on the left toolbar of each page. It is password protected for security reasons, so you will need to log into navalengineers.org first.

Who do I email for help?

For additional technical support, please email navatekstem@gmail.com.

For questions about non-technical issues, please email fleet@navalengineers.org.

Confused on who to email? Email both accounts above, and we will get back to you as soon as possible.

How do I create multiple accounts for my students?

Use this form to list all the accounts you need, and then please email fleet@navalengineers.org. Every FLEET account is tied to an email address, so you will need a unique email address for each account. Most schools we work with have students work in teams, so they create accounts for FLEET like “fleet1@school.org” or “school1@gmail.com”. If this requirement is impossible for you, please email us to discuss your situation.

Appendix B. 2018-2019 FLEET Mini-Grant Application

The American Society of Naval Engineers (ASNE) is seeking FLEET applications for the 2018-2019 academic year. ASNE manages grants from the Office of Naval Research in order to support the FLEET program. Money can be used to support FLEET implementation via new technology purchases, teacher time, and/or materials required to teach FLEET concepts.

You need to 1) complete the Budget (p. 2), 2) complete the Project Description (Section A, p. 2), 3) complete the Application Summary, and 4) you and your principal need to sign it. (Find this file at www.fleetengineering.org.)

2018-2019 FLEET Mini-Grant Application Summary

Name: _____ Position/ Role: _____

Email: _____ Phone: _____

School/Organization: _____

School/Organization Address: _____

_____

Title I School? YES ☐ NO ☐ Grade Level(s): _____ % of Free and Reduced Lunch[2] : _____

Expected Number of FLEET users:_____ Total Amount of Funds Requested (Up to $1,000): _____

At the end of the program, FLEET users are given an anonymous, voluntary survey. How many surveys will you need?

Student surveys: _____

Educator surveys: _____

If multiple teachers will be using FLEET , please list their name(s), email address(es), and a phone number.

_____

Name of organization for attached W-9 (who we address the check to): _____

As the party(ies) responsible for the execution and administration of the proposed request, we pledge to:

- ❖ Complete the activities as we describe in Section A or notify ASNE if we are unable to do so.
- ❖ Submit a final project report (detailing how funds were spent) no later than June 15, 2019.

I/We recognize that providing the accounting, reporting and publicity items listed above are a condition of funding and therefore are my/our obligation as a grant recipient. I/We also understand that the awarding of all grants and the amount of any grant shall be at the discretion of the Grant Committee. I further understand that the Grant Committee shall have the right to use content from the grant to disseminate at will.

Applicant(s) and Principal(s) signature(s):

Applicant: _____ Date _____

_____ Date _____

Principal: _____ Date _____

[2] You can find this information at www.nces.ed.gov.

Mini-Grant Budget

Your budget should connect directly to your Project Description. Each line item should support FLEET implementation. Please be specific and use another sheet of paper if necessary.

- ❖ If funding is used for technology/materials, itemize direct costs of materials (specifying the quantity, vendor and price). Screenshots of items from online marketplaces is acceptable.
- ❖ If funding is to be used to as a stipend for staffing, please note this and the total of the stipend requested.

School: _____

Teacher(s):_____

Item(s)	Dollar Amount Requested
Total:	

NOTE: You need to submit an organizational W-9 so that we know

Will you be able to use the item in subsequent years to potentially support the FLEET competition again?

_____

Section A: Project Description (1/2 to 1 page typed, single spaced, 12 pt font).

Describe the proposed project. Will you use funds for technology, materials or teacher staffing? Include how this project will impact students, staff, and the instructional program. Proposals that reflect administrative support through proposed activities or a letter of support will receive preference.

In Section A, please highlight the skills/knowledge you expect the students to develop and/or knowledge you expect them to acquire as a result of this grant.

Proposals that incorporate the following components are of the greatest interest:

- Targets Title I and underserved populations
- Addresses STEM career development
- Overall creativity and innovation
- Incorporates STEM-based learning
- Integrates cross-curriculum aspects of STEM
- Goals and objectives are clearly stated and measurable
- Supports active student engagement
- Best practices of inquiry-based, project-based, and 21st-century learning skills are incorporated
- The proposal aligns to state Core Standards and best practices
- Assessment and evaluation components enhance student learning
- Budget is reasonable and appropriate, and specific equipment costs are identified with vendor quotes
- Materials, resources, and/or technology are integrated in innovative and authentic ways

Section B: Project Reflection (to be submitted at the end of the competition cycle --by June 15, 2019)
Recipients will be required to submit a brief, written report (including photos, if applicable) to the organization regarding the outcome of the project during the school year. Copies of receipts from purchased must also be submitted for verification.

The minimum reflection will honestly address these questions:

- ❖ Did you find the project to be successful?
- ❖ Will you continue to participate in the FLEET competition next year?
- ❖ Did your students achieve the goals you anticipated?

PLEASE ATTACH YOUR SCHOOL TAX IRS W-9 FORM WITH YOUR APPLICATION.

- ☐ School/Organization Tax IRS W-9 form
- ☐ Application Summary
- ☐ Signed Application Summary is signed
- ☐ Budget for grant proposal
- ☐ Any ancillary budget materials (e.g., pricing information, additional budget pages)
- ☐ Section A: Project Description (including letter of principal support if provided).

*Be sure that all fields are completed. Incomplete applications will not be considered for award.

Notification of Awards

- This is a competitive grant process. Grant awards will be recommended by a grant advisory board. Recipients will be notified on a rolling acceptance basis through September 30, 2018. Please submit your application as soon as possible because there is a good chance that we may run out of grants before September 30, 2018. Upon completion of the awarded proposals, recipients will be asked to provide a written summary with project samples.

Capstone Event

Event
FLEET will have a celebratory capstone competition in Virginia Beach, Virginia in early May 2019. This event will feature award ceremonies for high scores from the season and high scores earned during a live competition at the event.

This event will coincide with an American Society of Naval Engineer's conference, and speakers from the armed forces and private industry will stop by to talk with students about their careers and experiences. Lunch will be provided and more details will be available at www.fleetengineering.org.

Travel Grants
There is a separate travel grant program. Organizations can apply for up to $500 to finance travel to and from the capstone event. Applications are available at www.fleetengineering.org, click "Travel Grant." If you have any questions about what is allowable under this grant, please email Mike Briscoe at mbriscoe@navalengineers.org.