



ACTIVITY SUMMARY

Teamwork challenges are a great way to help your team members learn how to problem solve and work together. They are also a lot of fun! This activity utilizes multiple Core Values by asking the team to choose items that they would want when stranded. They must create a combined list of items and then draw an innovative design for a way to store the items on the lifeboat. This is also a great activity that can be done virtually!

Age Range & Grade Level: Ages 9+, Grade 4+

Program Connection: FIRST®LEGO®League

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ACTIVITY OUTCOMES

Participants will:

1. Create a list of items that they would want if lost at sea.
2. Work as team to create a combined team list of items.
3. Design a storage space on the lifeboat for the team items.

RELEVANCE MATRIX – Subject Area Crosswalks and Core Values Addressed

Science	Math	Literacy	Social Studies	Computer Science
Ocean currents	3D shapes, Geometry	Communication and Listening	Historical perspectives	Logical Thinking
Discovery	Innovation	Impact	Inclusion	Teamwork

FUN! Our last Core Value should always be used when doing any FIRST activities.

KEY VOCABULARY

design

prototype

model

engineering design process

drawing

solution

MATERIALS & SUPPLIES NEEDED FOR THIS ACTIVITY

Lost at Sea Design Brief, paper, pencil, prototyping materials (optional)

GUIDANCE SET-UP

Description – Action – Guidance	Notes
Provide students with the <i>Lost at Sea</i> Design Brief. Watch the demo video with students or to get inspiration for guiding the students through the activity.	The design brief document is for the students is below. You can adjust the difficulty of the activity by increasing or decreasing the time limit and the number of items they may choose.
Review the problem statement and criteria/constraints with the students. Remind students they will be using the engineering design process to work towards a solution.	Review the age appropriate engineering design process with your students.
Determine how students will complete the activity, what their length of time will be, how to collaborate virtually and how to share their solutions. Have students work on their solutions.	Solutions can be built and designed using materials around the house or it can be a drawing or computer aided design (CAD).
Review <i>Evidence of Achievement</i> rubric (on next page) and create assessments if needed.	Sample rubric provided.
Explore the <i>Go Further!</i> opportunities	See below
Wrap up – Have students complete their <i>Core Values Self-Reflection</i> and review.	<i>Core Values Self-Reflection</i> is found in the <i>Lost at Sea</i> Design Brief document.

STUDENT OR TEAM ACTIONS

1. Review the *Lost at Sea* Design Brief and problem statement.
2. Research the questions and discuss.
3. Create a list of your own items and share.
4. Work as team to create a combined list of items.
5. Create a storage solution to solve the challenge presented in the problem statement.
6. Share your solution and reflect on your learning.
7. Explore the *Go Further!* opportunities.
8. Complete your *Core Values Self-Reflection*.

GO FURTHER!

Create a prototype of your storage solution along with all the items that would go inside of it. You could create a physical model out of building blocks or modeling clay or design it with computer aided design (CAD).

EVIDENCE OF ACHIEVEMENT

Evaluation Rubric			
Category	3 points	2 points	1 point
Requirements	All requirements on the design brief were met.	Some of the requirements on the design brief were met.	Only a few requirements on the design brief were met.
Design	Clearly showed how the solution solved the challenge.	Showed how the solution would solve the challenge.	Not clear how the solution would solve the challenge.
Collaboration	Demonstrated collaboration by sharing information or working with team members.	Shared some information or with team members.	Respect and inclusion being developed.
Knowledge Gained	All the questions are answered completely.	All the questions are answered but could have more detail.	The questions are not answered.



FIRST[®] at Home
Lost at Sea

PROBLEM STATEMENT

Oh no! Your team is shipwrecked and stranded in a lifeboat. There isn't enough space for everyone's items on the boat. You must use **teamwork** to decide what materials are needed. Be sure to **include** each person's ideas! Can you design an **innovative** way to store all these materials on the boat since space is limited?

If you can't work as a team to determine what materials to keep, your boat might sink! Use the expertise of everyone on your team to determine your material list and design an innovative storage solution. Details of your mission are below.

CRITERIA & CONSTRAINTS

- The items on your material list must realistically fit within or around the lifeboat and with the occupants already instead of it.
 - Assume there is no cellphone or satellite service!
 - Assume there is not a landmass or island near where your team is stranded.
 - This takes place on our earth, where physics and current environmental factors apply.
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ENGINEERING DESIGN PROCESS & FIRST CORE VALUES

[FIRST Engineering Design Process](#) | [Explore FIRST Core Values](#)

BUILDING THE BACKGROUND

Reflect, research, and answer the questions below.

1. What typically comes in a survival kit?
2. How much space is on a typical multi-passenger lifeboat?
3. Do lifeboats already come equipped with any supplies?
4. What is the history of shipwrecks and lifeboat design?

ACTIVITY STEPS

1. Write down five items you want to have with you on the lifeboat in order of importance. You have 2 minutes to complete the list.

2. Share your list with your team. Explain why you chose the items you did and the order you ranked them in.
3. Circle any items that you have the same as others on the team as they share.
4. Work as a team to narrow down to your list to just 2 unique items per person. You may need to compromise on the items you chose!
5. Use the space below to draw a design for innovative solution to store and hold everyone's items on the boat. Be sure to label all the items from the team.

DRAWING

REFLECTION QUESTIONS

1. How did you narrow your list down to five items? How did you decide the ranking of each item?
2. Did you have disagreements on the final team list? If so, how did you deal with them?
3. How did your storage design differ from teammates? How was it similar?
4. What skills did you use or learn in this activity?
5. What Core Values were used in this activity?

GO FURTHER!

Create a prototype of your storage solution along with all the items that would go inside of it. You could create a physical model out of building blocks or modeling clay or design it with computer aided design (CAD).

CORE VALUES SELF-REFLECTION

	Amazing Skill	Great Job	Making Progress	Could Be Better
Discover	I approached the tasks looking for all possible answers independently and used perseverance to discover the answer on my own.	I approached the tasks and asked questions from one other person but persevered to discover the answer on my own.	I approached tasks but needed assistance multiple times to reach a point of discovery.	I depended on others to make the discovery for me.
Innovation	I used creativity and perseverance to solve problems on my own, coming up with unique solutions for the tasks I was given.	I used creativity and perseverance to solve problems on my own coming up with different solutions for the tasks I was given.	I used creativity but struggled with perseverance to solve problems on my own.	I struggled with being creative and only used the information given and needed a lot of encouragement from others to complete the task.
Impact	I approached the tasks applying understanding of the information with the impact it can have on me and my future as well as how I could help others.	I approached the tasks knowing and applying the information with impact it can have on me and my future.	I understand the tasks but struggle to apply how it will help me in my future or to influence others.	I understand the tasks but did not approach it with understanding the impact it can have on my future or others.
Inclusion	I approached all tasks with inclusion of others' ideas, I showed tremendous kindness by including others' views in my projects and work. I approached my solution thinking how all people would interact with the solution.	I approached most with inclusion of others' ideas, I tried to understand others' views and include them in my projects and work. My solution mostly incorporates needs of others.	I approached some tasks with inclusion of others' ideas, I tried to understand others' views and include them in my projects and work. My solution meets only a few needs of others.	I did not approach tasks with inclusion of others' ideas, I tried to understand others' views and include them in my projects and work. My solution is not inclusive of different types of people.
Teamwork	I used collaboration, communication and project management to get all tasks accomplished for myself as well as the others.	I used collaboration, communication and project management to get most tasks accomplished for myself as well as the others.	I used collaboration, communication and project management to get some tasks accomplished for myself as well as the others.	I only sometimes used collaboration, communication and project management and accomplished a few tasks for myself as well as the others.
Fun	I kept a positive attitude throughout and found opportunities to have fun even through struggle. I looked for additional opportunities to have fun in my tasks.	I kept a positive attitude throughout and found opportunities to have fun even through struggle.	I saw the enjoyment and fun after the activity but struggled to see it during.	I only saw struggle in completing my tasks and did not look for times to have fun.