CRASH COURSE:

Island Survival

Project-Based Learning Curriculum by Beyond School Bells (BSB)

Contents:

Afterschool Curriculum:

A group of students have crash landed on a tropical island and must learn to survive together. This club curriculum will take students through learning some basics of survival like shelter building and water purification. It will then teach students to focus on building their island community with the resources available to them and the importance of taking care of themselves. The club will end with activities using the engineering mindset to get home and journalism to share their stories with the world back home.

Beyond School Bells
nebraskachildren

Overview

Through the course of these activities, students will engage with ideas of survival in nature, teamwork, and creative problem-solving. Some activities may take longer than others and many can be continued across multiple club sessions if students and club leaders choose. These lessons are designed to introduce students to activities within the HEAL framework of Health, Education, Administration, and Literacy as well as incorporate STEM: Science, Technology, Engineering, and Math. Activities should challenge students with hands-on projects and collaboration with their peers. Club facilitators should lead students through activities using this guide as well as engage local experts like Master Naturalists, State or local Parks staff, and others with knowledge and experience in outdoor survival and team-building. Good luck and have fun!

Students will need devices with internet access to complete most lessons.

L1. SURVIVAL ESSENTIALS

Shelter Building

a. Shelter building example video
b. Discussion on common, unique or natural materials

Water Filtration

a. Water filtration example video
b. Clean water discussion

First Aid

a. Water filtration example video
b. Clean water discussion

L2. ISLAND COMMUNITY

Plant and Animal ID

a. Part 1 – Plant ID; Part 2 – Animal ID
b. Animal tracks images discussion
c. Simple ID facts / "fun facts" about local plant and animal ID

Island Hunter - Animal Trapper

a. Animal Trapping Machine document
b. Discussion on what animals could be with them on the island

Island Haze

a. Club Leader prepared for conversations about student fears and mental well-being *(See Lesson Introduction for more information on preparing.)*
b. Discussion on mental well-being

L3. HOMEWARD BOUND

Fishing

a. Connect with a local expert
b. DIY fishing tools activity

Island Navigation

a. Compass skills
b. Clean water discussion

Raft Building

a. Raft example video
b. Raft building challenge activity

L4. Document Your Experience

a. Link to document for prompting student evaluation
b. Students develop creative stories of their real or imagined experiences

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Setting the Stage for the Unit

This club begins as a group of students learn they've recently ended up on a tropical island and must learn to survive. Students have limited resources, but will rely on teamwork and the environment around them to survive.

"As you take in your surroundings, you can see you've landed on a tropical island. You're standing on a sandy beach and there are trees and forests off the beach. What might you see as you look around?" *Consider examples that kids might share – palm trees, ocean, driftwood, various sea life, streams, etc.*

Together, over the next few weeks in this club, we will figure out what we need to do to survive together as a group. We will explore how to build shelter, get water, and feed ourselves. There will be some tough situations, are you ready?"

Facilitator notes:

If there is room in your classroom, consider adding a mural of the island that students in this club have landed on. Students can add details of resources on their island (trees, water, sand, etc.) that they place on the mural. The mural can represent the limited resources on the island that are used, sustained, or developed over the course of the club. Students should add to this mural after each lesson to show their progress on island survival, community building, and skills they've learned along the way.

The final lesson has students create and share stories from their experiences "surviving" on this island. If you plan to do this lesson, have students take pictures, record videos, or keep notes of their projects to include in a final story.

Island Survival

L1 Survival Essentials - Shelter Building

Setting the Stage: Shelter is a basic need of humans that is often overlooked. When in a survival situation, it is imperative to build a strong shelter with at least 3 walls and a roof. While on the island, this will be a home base and should be able to protect you from nature and its many elements (rain, wind, sun, predators). In a crash event, you must use tools and supplies from the plane and from the island you end up on (sticks, palm leaves, etc.). **YouTube example video of 20 minute shelter.**

Learning Goal: The goal of this lesson is for students to work as a team to plan, design, and construct a shelter.

Survival Skill: Shelter construction

Activity:

1. Introduce activity – Why might shelter be an important place to start with surviving our plane crash? What would happen to us if we don't have shelter from the sun, wind, rain, or cold?
2. As a full group, have students brainstorm the features they might want and need out of their shelter.
3. As a full group, open up the emergency kit from the plane and see what tools you have to work with.
4. In groups of 3-4, draw out your plan for your shelter on a piece of paper using the available building materials and tools. Students will show plans to instructor for approval and receive building materials.
5. Students build their shelter using given materials.
6. Instructor rates student shelters using these criteria:
   - Does it have 3 sides and a roof?
   - Is it sturdy enough to withstand side or top pressure?

Materials:

- Paper
- Pencils
- Markers
- Make Do Kits and spare cardboard
- Popsicle sticks
- Tape/glue
- Emergency kit includes: bottled water, pocket knife, screwdriver, wrench, pliers, compass, plastic trowel, flashlight/batteries, local map, fishing line.

Reflection:

1. What materials were the most useful? What was the least useful?
2. Would you be able to live in this for a week with your group?

Enrichment:

Instructor can introduce various shelter tests like wind (fan) and rain (watering can) or storms by shaking foundation of shelter. Time permitting, students can go outdoors to construct shelters with only natural materials.

Have the students build mini versions of their shelters outside. On the following day, check to see if they made it through the night.

Island Survival

L1 Survival Essentials - Filtering Water

Setting the Stage: It is extremely important for your group to gather water to survive, but you can't just go around drinking any water you can find... it must be filtered first! Water can contain many different types of microbes, chemicals, and other potentially hazardous things. Start off by discussing the importance of water filtration/why unfiltered water is dangerous. Talk about the difference in safety between standing and flowing water. When is water safe to drink? Watch **"When is Water Safe to Drink?"**

Learning Goal: The goal of this lesson is for students to understand the importance of water filtration and the scientific and natural processes by which water is filtered.

Survival Skill: Build a water filter.

Activity:

1. Remove the lids and cut 1" off the bottoms of the two bottles. Using the rubber bands, affix the cheese cloth (or alternative cloth material) to the bottom of one of the bottles.
2. In small groups of 2-3 students, using the other filtering materials, have students create their own filters in layers. Layer order DOES matter, but give the students the opportunity to experiment. Coffee filters should go on top of the bottle. Insert one bottle into the other upside down (see photo below)
3. Using the dirty water mixture, test the filters. The water will need to be filtered a few times. Note: the filtered water from this experiment should NEVER be consumed, only observed for changes.
4. Have student document the changes they observe. Using white paper, note which designs were the most effective.
5. This activity can be done in an iterative style, having students redesign their filters based on their results until they find the filter they think is the most successful.

Materials:

- Tap water + Food coloring + play sand or mud/dirt
- For Filters
  - Recycled plastic water bottle, x2 per filter
  - Rubber band, x2 per filter
  - Cotton balls,
  - Coffee filters,
  - 4" squares of cheese cloth, x1 or 2 per filter, (optional)
  - Aquarium gravel (optional)
  - Aquarium filter carbon (optional, must be washed and dried)
- Scissors
- Containers

Be creative! Have students add items that will get caught in the filter like hair, rocks, etc.

Reflection:

As a full group, have groups share their most successful design and why they think it was successful. Facilitate a discussion about why each design worked/didn't work and as a group, make some conclusions about what the best method would be for making a filter using these materials.

Enrichment:

As a group, set up a desalination experiment. Why would it be important to be able to remove the salt from water? With the main water source being the ocean, this would ensure that there would be a continual water source. Leave the experiment out overnight and check on the results the following day.

Suggested/Additional Resources:

The Importance of Water Filtration:

https://home.drinkflowater.com/blogs/posts/the-importance-of-water-filtration

Design:

www.jpl.nasa.gov/edu/teach/activity/water-filtration-challenge
www.fizzicseducation.com.au/150-science-experiments/biology-environmental-science-projects/create-a-water-filter

Enrichment:

www.consortiumeducation.com/classroom-ideas/filtering-experiment-ks2
www.education.com/science-fair/article/fresh-water-salt-water
www.discovere.org/stem-activities/grade-6-lesson-desert-island-desalination

Island Survival

L1 Survival Essentials - First Aid

Setting the Stage: First Aid is a crucial survival skill! Even if injuries are minor, it is important to be prepared to provide first aid in the wilderness. Let's perform some basic first aid!

Learning Goal: The goal of this lesson is for students to understand various first aid skills and be introduced to health-care careers.

Survival Skill: Basic First Aid

Activity:

1. As a large group, tell the students that they will be learning some first aid techniques today. Why might knowing some basic first aid be important for their time on the island?
2. Optional: Show the video about backwoods first aid. www.youtube.com/watch?v=nnUQHKZqnkw
3. Using the provided PowerPoint, go through the first illness/injury and how you would treat it.
4. Have students find a partner. Have one partner be the injured/ill party and the other be the nurse. Have the nurse "treat" the patient using the materials provided. Teacher should move around and give feedback as the students work. Once the first student in each group has completed the nursing skill, have them switch roles.
5. Use the procedures to move through each of the skills in the PowerPoint.
6. Note: If a student is uncomfortable with being the patient or the nurse, a group of three can be created so they can simply participate by watching others perform the skills.

Materials:

Basic First Aid Materials

- Band-aids (Varying sizes)
- Gauze
- Thermometer
- Ace wrap
- Two arm slings
- Soap
- Sink or water bottles (depending on if this activity is performed inside or outside)
- Ice packs
- Warm water
- Towels/cloths/blankets
- Alcohol wipe
- Two medium-length, thin, rigid objects (wooden rulers will work in a pinch, but the item chosen should be more rigid)

Reflection:

Have students discuss the importance of first-aid, caring for one another in a survival situation. What did they learn about the various illnesses/injuries and how to treat them?

Suggested Resources:

www.emergencyfirstresponse.com/5-reasons-why-basic-first-aid-knowledge-is-essential/
www.redcross.org.uk/first-aid/learn-first-aid
www.wikihow.com/Wrap-an-Ankle-with-an-ACE-Bandage
https://scoutlife.org/outdoors/outdoorarticles/139031/test-your-skills-in-ten-emergency-scenarios/
www.wikihow.com/Apply-Splints

Enrichment:

For extensions to this lesson, consider leading any of these activities with the kids.

www.beyondschoolbells.org/curriculum/health-sciences.html
www.sciencebuddies.org/stem-activities/sanitizer
www.sciencebuddies.org/stem-activities/make-stethoscope

For more information about first aid in a wilderness situation, consider connecting with your local Boy Scouts of America office.

Island Survival

L2 Island Community - Plant Identification

(part 1)

Setting the Stage: After living on the island for a while, and are curious about the kinds of plants growing around your camp. You don't know how long you'll be on the island, so you should try to understand what plants you are around, what you can hunt or forage, and what you should be careful of.

Learning Goal: The learning goal of this lesson is for students to understand varying features of plants.

Survival Skill: Recognizing and identifying plants

Preparation:

IMPORTANT NOTE: Prior to prepping for this activity, be aware of any food allergies in your group.

- *If you'd like more background information, you can find that **HERE**.*
- *Before the students arrive, wash and prep vegetables and fruit by cutting them into bite-sized pieces, one per student. It may help with distribution if you create plates ahead of time that include each of the items that they will be taste testing for the day.*
- *You may also want to keep one uncut fruit/vegetable so you can show the students what the whole fruit/vegetable would look like if they were looking for it at the grocery store or in a garden.*
- *Create one large poster with a simple drawing of a plant with a place to label each part: 1) root 2) stem 3) leaves 4) flower 5) fruit 6) Seeds (Optional)*

Part 1 Activity:

1. Ask the students to name the parts of a plant that we eat. As they name each part, label it on the prepared poster.
2. Explain that we are going to sample several plants today, and as a group we will try to identify which part of the plant each sample comes from.
3. Explain that sometimes we eat the entire plant but often we only eat a portion of the plant. Some plants have certain parts that are edible and certain parts that aren't. One example is rhubarb. The leaves are not edible but the stem is. Other plants may not be inedible but they might not taste very good or certain parts may not yield much nutrition or enough calories.
4. As you examine the pieces of the plants you have provided them, ask if anyone knows what it is. Encourage them to use their senses (smell, feel) to try to identify the fruit/vegetable before tasting it.
5. Once they have figured out as a group what the fruit/vegetable is, have them identify which part of the plant they think it comes from. You can assign each part of the plant a number and just have them hold up the number of fingers they think represents the plant part that particular fruit/vegetable comes from.

Materials:

Various types of fruits/vegetables that represent different parts of the plant (at least one per plant part).

Examples could be:

- Roots: carrots, radishes, potatoes, onions, jicama
- Stem: celery, rhubarb, asparagus
- Leaves: lettuce, spinach, arugula
- Flower: broccoli, cauliflower, artichoke
- Fruit: berries, apples, star fruit (there are tons, you might want to try something that the kids haven't had before).
- Optional: Seeds: sunflower seeds, dry beans (must soak overnight), peas, lentils.
- Plates/napkins

Reflection:

1. Were there any fruits/vegetables that we tried today that you hadn't had before?
2. Were you surprised by which part of the plant we eat on any of the items?
3. If you were trying to find food on the island, how might you use something you learned today to help you?

Island Survival

L2 Island Community - Animal Identification *(part 2)*

Setting the Stage: After living on the island for a while, you've started to see patterns of animal tracks in the sand and jungle and are curious about the kinds of plants growing around your camp. You don't know how long you'll be on the island, so you should try to understand what animals you are around and what you should be careful of.

Learning Goal: The learning goal of this lesson is for students to understand varying features of animals.

Survival Skill: Recognizing animal tracks

Preparation:

PRIOR TO THE LESSON

- *Label containers with animal names/pictures and place them around the room.*

Part 2 Activity:

1. As a group, identify each of the animals represented on containers around the room. Talk about characteristics if the students are unfamiliar with the animal.
2. Divide students into groups of 2-3.
3. Have students cut out tracks from the animal tracks worksheet and put initials on the back.
4. Students will try matching tracks to animals by placing the correct track in the container they think it goes to.
5. Pairs/groups will get one point for each correct identification of an animal track.
6. Once students have all chosen where their tracks will go, go around the room to each container and talk about the correct track. Explain some important features of physical animal tracks and how one might identify certain animal tracks by their characteristics.

Materials:

- Containers (one per animal you will be introducing to the kids – there are 15 pictures)
- 1 copy of the animal pictures
- 1 copy of the animal tracks key (for the teacher)
- 1 copy per 2 students of the animal tracks worksheet
- Scissors
- Pencils/markers/crayons

Reflection:

What did you learn about identifying animals and their tracks?

Which animal characteristics can you identify based on tracks? (ie. How can you tell an animal might live in the water? Might have hooves? How big it might be?)

Enrichment:

- Have students make tracks out of cut out sponges, clay, play-doh, or other materials.
- Using the worksheet at this LINK, recreate the game but using common animals/ tracks to Nebraska.
- Provide the students with guidebooks (and binoculars if possible) for birds, insects, tracks, and animals and go outside and look for tracks or other evidence of animals around the school. Encourage students to try to identify things like animal fur, nests, burrows, etc.

Animal Tracks Worksheet *(1 per student)*

Animal Tracks Key *(1 copy for the teacher)*

Animal Pictures

Domestic Dog

Wolf

Red Fox

Raccoon

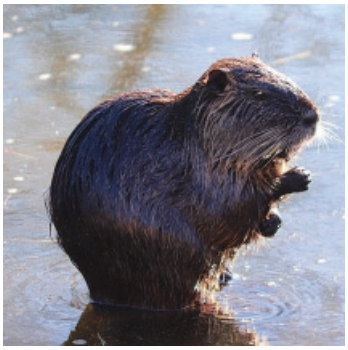
Stone Marten

Badger

Domestic Cat

Brown Hare

Beaver



Common Rat

Squirrel

Hedgehog

Red Deer

Roe Deer

Wild Boar

Island Survival

L2 Island Community - Animal Trapping Machine

Setting the Stage: Your island community is tired of foraging for plants to eat and want meat to diversify your diet and add in needed protein. Together in groups, you must use your animal tracking knowledge from last week to identify and trap an animal for food.

Learning Goal: The goal of this lesson is for students to work as a team to plan, design, and construct a trapping machine highlighting engineering skills.

Survival Skill: Constructing animal traps

Activity:

1. Talk about the importance of a healthy, balanced diet, and why protein is an essential part of that diet. You may want to share some additional information through this video: www.youtube.com/watch?v=KSKPgaSGSYA)
2. Present 3 sets of footprints, correlating to a small, medium, and large animal, allowing student groups to decide which one they want to trap for food. Keep in mind that larger animals need a larger trap, and a further distance away to trigger the trap (Ex.small animal must trap a 5inx5in area, large animal must trap a 1ftx1ft area; small animal needs 3 ft of distance, large animal needs 10 ft of distance).
3. Introduce a Rube Goldberg machine. A Rube Goldberg machine is a series of simple machines that, off of one activation trigger, completes a long series of motions that culminates in a finished activity. How might you go about constructing one?

   Watch these two videos as possible examples.
   https://www.youtube.com/watch?v=bl2U1p3fVRk
   https://www.youtube.com/watch?v=wih0Q-BVPtM
4. Groups must now construct a trap with one triggering mechanism that ends with the trapping of a stuffed animal or simulated animal.

Materials:

- 3 sets of animal footprints (one small, one medium, and one large animal), use examples from the animal identification lesson
- Simulation animals (Stuffed animals; printed pictures)

Variety of materials for the students to build with which could include: String, pulleys, yarn, rulers, tape, books, cardboard tubes, various recycled materials, K'nex, Legos, marbles, Keva plants, etc.

- Students can also bring items from home.
- Computer/projector

Reflection:

- How did your understanding of your diet change after this activity?
- What materials did your group choose to use for your trapping machine and why?
- How did you use team-work to build your Rube Goldberg machine?
- How did you use the Engineering Design Process to create your machine? (define the problem, research, generate solutions, select a solution to try, test/evaluate, redesign)

Enrichment:

- If students are successful too quickly, encourage choosing a larger animal, make the trap bigger and a longer distance away from the animal.
- Students can compile their trap mechanics to make a whole group trap
- Introduce the students to making a simple snare. Using the materials they might have on hand when they are lost on the island (headphone wire, shoelaces), they could learn to make a simple snare using these directions.

Island Survival

L2 Island Community - Island Haze

Setting the Stage: On a peaceful night while all the survivors were asleep, a mysterious mist settled over the island. The mist intensified the survivors' fears and caused them to mistrust the other groups on the island. Survivors try to throw their fears away without dealing with them and they keep piling up. Can survivors learn to deal with their fears, or will they be overwhelmed?

Emotional health and well-being are often overlooked in survival situations as well as everyday life. In order to take care of themselves, survivors need to acknowledge their fears and develop healthy strategies to deal with them.

Learning Goal: The goal of this lesson is for students to understand the importance of mental well-being and have empathy for others who may struggle with certain fears.

Survival Skill: Mental well-being

Big Question: What types of strategies do students have and how can they help each other develop strategies to take care of their mental health?

Facilitator Tips:

Consider having your school counselor join you for this lesson. They could help with giving insights into student feelings and positive ways to deal with mental health challenges.

Emotions wheel can be used to aid in the discussion (sample provided below)

Student mental wellbeing video series:
https://bit.ly/ChildMind_student

Educator Guide to accompany student video series:
https://bit.ly/ChildMind_EducatorGuide

(Activity instructions on next page)

Reflection:

- If students are comfortable, have them share their feelings about the activity using statements that start with: "I felt..." or "this made me feel..." To encourage a community feel, other students could be encouraged to share their feelings: "This also made me feel..." or "When this happens I..."
- Go around the circle and have students share one thing they learned today or something they will use in the future. If they aren't comfortable sharing, they can use the option to "pass" at any time.

Activity:

1. Have the students sit in a circle on the floor (or chairs if need be). This arrangement will help the group build a trusting and safe space. As a group, talk about some rules or boundaries that will be followed today to keep the space safe for everyone.
2. Introduce the concepts of fear, insecurities, and mental health. Ask the group to talk about what those terms mean to them.
3. Have students write one of their fears/insecurities on a piece of paper which they will then crumple up into a ball. Students can create 2-3 of these crumpled balls with fears/insecurities.
4. Organize students into 2 groups. This activity can be done in a classroom, hallway, or gym. If you are using a classroom, be sure to have enough open space for students to move around.
5. We will be playing a round of "Clean My Yard." The goal of the game is to "clean" your side of the space by throwing all of the paper balls on to the other groups side. Both teams will be "cleaning" at the same time. Students can start with their own paper balls in their hands and then will move to pick up and throw any balls that land on their side to the other side.
6. Set a timer for a specific amount of time and let the students play. Note: You'll probably find that neither team can be completely successful in "cleaning their yard." You could either not choose a winner or have the team that has the fewest balls of paper on their side at the end be the winners.
7. At the end of the game time, have each student pick up 2-3 paper balls that are near them and come back to the original circle. Collect paper balls not collected by students and have them ready in case some students are not comfortable discussing the paper ball(s) they end up with.
8. One by one, go around the circle and have students choose one of the fears on the paper balls they have at the end of the game. These should represent someone else's fears in the group. If they have ideas of ways they could cope with those fears/insecurities, have them share those strategies. If they don't have an idea, have the group help with ideas.

Island Survival

L3 Homeward Bound - Fishing

Setting the Stage: After arriving on the island and learning to survive, then building your community, it is time to prepare to go home. But on your journey home, you won't be able to hunt or forage for food, so you must learn to fish!

Learning Goal: The goal of this lesson is for students to work as a team to design and create a fishing pole and lure.

Survival Skill: Introduction to fishing

Preparation: Make an example fishing rod by following along with this video https://youtu.be/_i8lawpr9G8 (stop at 1:30)

Facilitator tips: Do not let students create hooks with paper clips or soda can tabs, they can be very sharp.

Activity:

1. Students will build their own fishing rods and lures (using magnets instead of hooks) to catch "fish" (paperclips).
2. Show the video: https://youtu.be/_i8lawpr9G8 (stop at 1:30).
3. Pass out materials to each student and instruct them to build their own (use magnets for hooks).
4. Use the coloring utensils and craft supplies to make their own lures and bobbers.
5. Once they're finished, show the rest of the video.
6. Use painter's tape to mark a line on the floor to cast from and an area for paperclips
7. Let the students attempt to cast and pick up paperclips.
8. Once they're comfortable, give them the following options:
   - Option 1: Continue practicing with current rod
   - Option 2: Redesign bobbers/lure
   - Option 3: Recreate fishing rod using different materials
9. Students will then perfect their technique and/or rod

Materials:

- Recycled water bottles (or any cylinder to wrap line around like a stick, aluminum can, or cup)
- Fishing line (or string / yarn)
- Scissors
- Tape / glue
- Small magnets
- Paperclips
- Coloring utensils
- Craft supplies (pipe cleaners, pompoms, etc.) to decorate lures

Reflection:

- What designs worked well? Which didn't?
- Did one form of casting work better than another?
- Do you feel like you could make an actual fishing rod now?

Enrichment:

- Make casting/reeling activity portion a game with "bigger fish" further away and harder to catch and "smaller fish" closer and easier to catch. Assign points (ex. 3 for big fish, 1 for small fish) to sizes for scoring.

Island Survival

L3 Homeward Bound - Navigation

Setting the Stage: In preparation to head home, we first need to figure out approximately where we are and which direction we need to travel in to find civilization.

Learning Goal: The goal of this lesson is for students to begin to understand geography and apply it to simulated scenarios to "find their way home".

Survival Skill: Students will be able to read a map and learn cardinal and ordinal directions.

Activity:

1. Introduce the students to the cardinal directions (use an acronym like "Never Eat Soggy Waffles" to help them remember).
2. If possible, establish the directions in your classroom by hanging an "N" on the north side, "S" on the south side, etc. Talk about landmarks around the school that relate to the directions (ie. The front door is to the north, the playground is to the east, etc).
3. Introduce the idea of ordinal directions (Northeast, northwest, southeast, southwest).
4. Optional: Take the kids outside or to the gym and play a round of "Compass Ball". To play:
   - Mark the directions on the court using chalk, tape, or cones. Consider the basket to be North (mark just in front of the basket), the middle of the 3-point line to be South, and then arrange the directions for W, E, NW, NE, SW, and SE based on those two points. Do not label the directions; the kids will be practicing remembering which direction is which by moving to the corresponding spot on the court.
   - Split the students into two teams. Have each team create a line at the half court line.
   - Play will alternate between the two teams. To start the round, call out a direction. The student at the front of the line will move to the spot that corresponds with that direction and shoot. If the team member moves to the correct spot, they will earn 2 points. If they also make the basket, they will earn 1 additional point.
5. Once the students are fairly comfortable with the directions, bring out the map from the emergency kit and display it where everyone will be able to see it.
6. Watch the video about map scales. 1 inch will be 100 miles for the map. (https://www.youtube.com/watch?v=S5BLj5E48dw)
7. As a group, figure out approximately how far from land you are and in which direction you would need to travel to get back to civilization.

Materials:

- Chalk, tape, or cones
- Basketball (1 or 2 should be enough)

Optional: paper/pencil to keep score

- Map from emergency kit, laminated. With a whiteboard marker, draw a dotted line showing the approximate flight plan. Indicate on the map approximately where the plane went down.
- Whiteboard markers

Optional enrichment: compasses (1 per pair of students), golf tees (1 per pair of students).

Reflection:

- What did you learn about reading a map and estimating distances?
- Without a compass, what are some ways to know which direction you are facing while on the island or in a raft on the way back? (ie. Where did the sun come up in the morning?)

Enrichment:

- Teach the students to use the compass in the emergency kit. There are simple directions at this LINK.
- Hide a small item (such as a golf tee). Set up a simple course for the students to follow. (ie. Walk 5 steps east, walk 2 steps north, etc) and have them try to find the golf tee in teams.
- Have the students work in pairs to create their own course for others to try.

Island Survival

L3 Homeward Bound - Constructing a Boat

Big Question: Can you design and build a boat or raft to get the entire group off the island and to safety?

Setting the Stage: Your final day on the island is here! After learning to navigate and where you are on the map, you are finally ready to leave. Your final task is to build a boat or raft that can support weight and sail to safety.

Learning Goal: Engineering a raft, understanding buoyancy and wind energy, and using teamwork

Survival Skill: Raft/boat-building, teamwork

Resources: This video explains buoyancy and combines both of the videos above.

Activity:

1. Introduce buoyancy with the video. What makes a boat float? What do you need to consider when building your boat or raft?
2. Today's challenge will be to build a boat or raft that will float and hold the provided figurines (1 for each group member). Students can work in groups or individually.
3. Prior to building, groups/individuals should work out a plan for their boat using any combination of provided materials.
4. Once the plan is finalized, the group leader will approve the plan and provide the identified materials.
5. Students test if their boat/raft can float in a tub of water, supporting the weight of figurines to model each member of the group in order to successfully complete the activity. If the boat/raft sinks, the group should go back and re-engineer their boat, trying to solve the structural issues.
6. If groups are successful in getting their boat to float, have them think through how they would propel their boat on the ocean (ie. sail, paddles, etc).

Materials:

- Paper/pencils
- Large tub of water
- Plastic bottles (at least a 2-3 per group of students)
- Popsicle sticks (at least 10-15 per group of students)

Optional: other recycled or art materials for building

- Tape/Glue
- Cardboard
- Figurines (at least one per person in the group) – could alternatively use pennies or marbles to simulate people.
- Balloons
- Cups

Optional: fans to simulate wind and/or weights

Reflection:

- How did your group cooperate on the design process of your boat/raft?
- How did you adapt what you learned about buoyancy into your design?
- How did your raft/boat's success/failure make you feel?
- What steps would you change next time?

Enrichment:

- Using the weights, test boats to see how much weight they can hold before they sink.
- Have students design sails for their boats. Using the fans, simulate wind and have a sail boat race.
- Using the best concept design from a team, compile resources to make one large boat or raft.

Island Survival

L4 Document Your Experience - Tell Your Story

Setting the Stage: Now that you have made it off the island, everyone wants to hear your story! Choose a way to share your story and what you have learned through your experience. You could make a video to recap your experience on the island, use pictures to create a digital scrapbook or write out a daily journal. Be creative!

Learning Goal: The goal of this lesson is for students to construct a narrative of their experience and share it.

Survival Skill: Storytelling

Goal: Each student will share their story. Students can choose their own method for sharing their story.

Activity:

1. Over the past several weeks, you and your group have worked together and participated in a lot of activities related to survival. What did you learn from the activities? What was your favorite activity? What do you think others would like to know about your experiences?
2. Now that we are wrapping up, we'd like to take some time to share what we have learned with the world. Present the options that you have for equipment/materials for students to use to create their projects. Allow students to choose a group (or work alone) and work together to decide what they'd like to create.
3. Give the students time to work through their ideas and decide what they will create.
4. Note: this lesson can take as long or little time as you have. If you have limited time, limit the project options. You can also choose to spread the activity out over multiple days and have the students spend a little more time developing their projects.

Materials:

Note to the teacher: You may want to give some options for projects based on what types of technology you have available for your students and what you are familiar with using. If you do not have access to technology for each student or you have students who would rather create something outside of the digital realm, you could choose to print pictures and have students create scrapbooks.

Some options for materials:

- Cameras/iPads for taking pictures/videos
- Video editing equipment
- Video editing software (iMovie or Adobe Premier Rush)
- A way to upload from camera to video editing software (Cloud, cables, facilitator help)

Reflection:

- Do you want to learn more about any of these topics?
- Did you learn about any jobs/careers that you would be interested in by participating in these lessons?

Enrichment:

- Go into other creative mediums such as a movie poster, theater like reenactments of the challenges or funny moments, creative writing like a poem or a movie summary like on the internet for movies, or other experience summary items.
- Plan a family event in which students can share their projects and what they have learned. Students could also choose to set up stations and have parents participate in a few of their favorite activities.