Survivor

Submitted by
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Rationale
Students often see adaptations as choices made by an organism because it wants to survive. In order to address this misconception, I set aside a class period for my students to play this game. It illustrates that adaptations are more like tools in a tool box; organisms either have the tools necessary to adjust to a change in their environment or they do not. Organisms that do not have the tools to meet a challenge do not survive.

Instructional Goals:
Students will...

- recognize that adaptations are traits that help organisms survive.
- understand that organisms cannot choose the adaptations they have.
- see that different adaptations can be successful in meeting the challenges of an environment in different ways.
- realize that a lack of necessary adaptations will lead to the death of an organism.

Preparation
- Print three sets of cards and cut them out: letter cards, tool cards, and challenge cards. (I print the challenge cards on white paper, and the letter and tool cards on two different colors of tag paper. The different colors make them easier to sort at the end of class, and the heavier paper lasts for several classes.)
- Place the tool cards in a basket.

Setting up the Game
- Shuffle the letter cards and give one to each student to randomly assign them to teams of 4. Students with matching letters meet at a work table or lab bench. This is their island.
- Students place their letter cards at the end of the table to keep score. Groups of 3 are given a fourth card.
- Each student randomly draws 1 tool card from the basket so that the team has 4 tools to use.
- Explain the rules:
  1. Students are shipwrecked alone on a deserted tropical island. The 4 objects they have chosen have washed up on shore, and are the only tools they have to complete the challenges they are given.
  2. A challenge will be given from a card drawn at random. Each team has 1 – 2 minutes to figure out how to complete the task using the tools they have.
  3. Anything likely to be found on a tropical island may be used, however tasks cannot be accomplished without the use of tools. For example, there may be large leaves, but the team must have something to cut them off the plant. Teams may not tear or break things with their hands, use rocks as hammers, or push trees over. There is nothing useful laying about on the ground.
4. All 4 tools do not have to be used for every challenge. Tools may be broken, bent, or dismantled. They magically reassemble themselves between each challenge.

5. When time is called, discussion stops. In turn, a member from each island explains the team’s plan for accomplishing the task, including how the tools would be used. A different team will go first each time. Teams may not continue to discuss and refine plans while other teams are presenting solutions.

6. The teacher is the sole judge of the likelihood of each plan’s success. If the team has no plan, or a plan will not work, one letter card is removed from the island. (Only a card is removed; no students leave the ‘island’.)

7. When all 4 letter cards are gone, there are no survivors on the island and that team is done.

8. The game proceeds until only one team is left, or until time runs out.

Notes
In order to succeed, students must think outside the box so plans for meeting the challenges can get outrageous. You’ll have to decide how far to suspend reality in judging the teams. Can you cut hair with the edge of a shovel? Stick logs together with chewing gum? These will be suggested at some point!

Don’t let teams get away with too much. Once you let someone cut down a tree with a razor blade or blow up balloons that can lift a person into the air, you’ll never have anyone fail a challenge and playing the game will fail to meet the teaching goals.

After every two or three challenges, I do one of the following:
- Each team chooses a tool to put back in the basket.
- Each team can randomly choose one new tool.
- All tool cards are turned upside down on the table. I randomly remove one, and the team chooses a new tool card to replace it.

Questions for discussion
- Were there smart people with good ideas on the teams that did not survive? Why were these teams eliminated while others were not?
- Was there a team that finished with all 4 letter cards? Why or why not?
- When choosing tools from the basket, why didn’t you pick the tools you thought would be the most useful?
- Did some tools turn out to be more useful than you initially thought they would be? Explain.
- Did your team find that a returned tool would have been useful later? Could you get it back?
- When tools were exchanged or added, what biologic process was being modeled?
- How did your team decide which tool to return to the basket? What process was being modeled? How does this model differ from the actual process?
- If we continued to play and teams could choose the tools to keep while occasionally getting new tools at random, what would eventually happen?
- If your island was magically moved to the Arctic, would your team be able to survive with the tools it had? Why or why not?
Collect fruit that is hanging from a branch 30 feet high. The tree has no branches lower than 30 feet.

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Catch a fish from the sea.

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Dig a deep hole for use as a latrine.

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Heavy rains and flooding are expected. Build a raft that can float your entire team.

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It is going to rain! Keep everyone in your group dry for at least 20 minutes.

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Build a trap to catch a rabbit for dinner.

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Light a fire.

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Skin and clean a squirrel to prepare it for cooking.
Leave a message on the beach that will not blow or wash away.

A team member has broken an arm! Splint the arm.

Give everyone in your group a hair cut.

Make something to carry an injured team member.

Make big hats for everyone in your group to protect them from the sun.

You want hamburgers. Make something to cook them over a campfire.

There are lovely sea shells on the beach. Use them to make jewelry.

It’s raining. Collect the fresh water.
Bandage a wound.

Make something that will alert you if a wild animal comes into your camp.

Make something comfortable to sleep on.

Dig up some clams and rinse them off.

Trap a bird to keep it as a pet.

Make something that will wake you up in the morning.

Make beautiful music.

Make a sign and attach it to a tree.
matches
magnifying glass
shovel
plastic bucket

wooden kitchen chair
large sheet of plastic
28 safety pins
wooden ladder, 4 meters high
10 meters of rope
ball of string
spool of black thread
12 paper clips

1 fish hook
2 umbrellas
hammer
pipe wrench
- pocket knife
- kitchen knife
- plastic lunch box
- 1 roll of scotch tape
- Philips head screwdriver
- wood saw
- 100 rubber bands
- 3 single-edge razor blades
<table>
<thead>
<tr>
<th>5 meter extension cord</th>
<th>12 packages of bubble gum</th>
</tr>
</thead>
<tbody>
<tr>
<td>light bulb</td>
<td>bicycle wheel</td>
</tr>
<tr>
<td>57 thumb tacks</td>
<td>harmonica</td>
</tr>
<tr>
<td>crowbar</td>
<td>wristwatch</td>
</tr>
</tbody>
</table>
ceramic coffee cup

green pencil

6 large nails

horseshoe magnet

box of chalk

lampshade

aluminum garbage can lid

lucky rabbit’s foot
<table>
<thead>
<tr>
<th>permanent ink marker</th>
<th>axe</th>
</tr>
</thead>
<tbody>
<tr>
<td>75 children’s balloons</td>
<td>pair of eyeglasses</td>
</tr>
<tr>
<td>colander</td>
<td>cheese grater</td>
</tr>
<tr>
<td>bolt cutters</td>
<td>key ring with 2 keys</td>
</tr>
</tbody>
</table>