



NIFA



United States Department of Agriculture

National Institute of Food and Agriculture

<https://nifa.usda.gov/program/4-h-positive-youth-development>

National Aeronautics and Space Administration

# EXPEDITIONARY SKILLS FOR LIFE

A FEDERAL PARTNERSHIP FOR STEM EDUCATION

## LESSON PLAN: ACTIVITY 3.10 MOTHER SHIP

### LESSON DETAILS

#### AGE/GRADE LEVEL

High School

#### LEARNER OUTCOMES

Youth will learn what it takes to be a leader and to provide leadership to a group of peers. Youth will learn how to take actions, adapt their behavior and make decisions based on the ideas and suggestions of the group. This includes the ability to work as both a leader and a follower.

#### SUCCESS INDICATORS

Youth will demonstrate their abilities to handle being in a lead role, including providing guidance and direction, while also accepting ideas and suggestions.

#### LIFE SKILLS

Adaptability, Contribution to Group Effort, Leadership

#### NATIONAL STANDARDS

21st Century Skills/Learning and Innovation Skills/COMMUNICATION AND COLLABORATION/Communicate clearly, collaborate with others

21st Century: Life and Career Skills / FLEXIBILITY AND ADAPTABILITY / Develop thinking skills, content knowledge, and social and emotional competencies to navigate complex life and work environments

21st Century: Life and Career Skills / LEADERSHIP AND RESPONSIBILITY /guide and lead others, be responsible to others

#### PREP TIME

30 minutes

#### ACTIVITY TIME

1 hour, 34 minutes (all activities combined)

#### MATERIALS LIST

- Paper
- Pencils, pens
- For each team of 4, collect in a 1 gallon sealable bag:
  - Water to land vehicle building supplies: 10 straws, roll of scotch tape, a piece of cardboard (8"x8"), 2 pieces of paper, scissors, 4 milk jug caps, 2 rubber bands.
  - Land to space vehicle building supplies: 1-9" balloon, ball of string, 1-16 oz. sour cream or cottage cheese container, toilet paper roll, 2 jumbo craft sticks.
- Items in the kits can be swapped for another item to better meet your access to supplies, but it is strongly recommended that all teams are provided the same items in their kits.

#### SUGGESTED SPACE

Tables with chairs

#### SUGGESTED GROUP SIZE

Multiples of four; youth will work in teams of 4 youth per team

#### REFERENCES

How Do I Improve Team Communication?  
<http://smallbusiness.chron.com/improve-team-communication-3077.html>

Overcoming 5 Obstacles Cross-Functional Teams Face  
<http://www.quickbase.com/blog/overcoming-5-obstacles-cross-functional-teams-face>

Effective Communication  
<http://smallbusiness.chron.com/effective-communication-team-work-3167.html>

### INTRODUCTION

**E**ffective communication determines the success or failure of projects requiring teamwork. When team members communicate with open minds, and by asking questions rather than making assumptions, they build trust and harmony. Communication is a required element in working together and creating a culture of camaraderie and success.

Here are some tips for good team communication:

- 1. Determine who the leader is.** You may have many strong leaders on a team, but one person needs to be identified as the one who will give instructions and make final decisions. If you don't know who is in charge, then you have people competing with each other rather than working together.
- 2. Share information with everyone.** It is easy to see how one team member holding back a piece of equipment or similar resource for themselves would hurt the team and be seen as unethical, but we often forget that information is also a resource. Everyone needs to share any relevant information they have, and be open to listening to the information that others share.
- 3. Have clear expectations.** When expectations are established, it's much easier to identify earlier on when they aren't being met, and what needs to be done to get everyone and everything back on track. Each team member needs to know what their role is, what tasks are their responsibility, when those tasks need to be completed, and how those tasks might connect to the tasks of others.

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EXPEDITIONARY SKILLS FOR LIFE

## MOTHER SHIP, CONTINUED

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**4. Recognize differences.** Recognize that all people learn and communicate differently. Some people are better verbal communicators, whereas others are better when they are able to communicate via a written medium. Allow team members to communicate in the way that they feel is best for them.

**5. Lead by example.** If you want team members to communicate in a more positive manner, be sure that your own communications are always delivered in a more positive manner. Don't preach one thing while doing the opposite.

Just like a favorite car, no team elevates to finely tuned effectiveness without periodic recalibration. And just showing up with your amazing set of systems and features is never enough. You need to assess the way these components work as a team. Tweak as needed. Evolve the team. Repeat.

## ACTIVITY INSTRUCTIONS

### ACTIVITY: MOTHER SHIP (60 MINUTES)

Explain:

Earth's atmosphere is thinning and is becoming a hostile environment in which humans can no longer survive. In order to survive, humans must make it to their destination: Mother Ship. Mother Ship is due to leave for the new habitable planet of Zenur, where the continuation of our species is possible. Each team has the task of creating a vehicle that will move them from water to land, and then from land to space so they can safely travel to the Mother Ship.

Directions/Rules:

1. Divide the youth into teams of four youth per team.
2. Have each team pick two of their members as the team leads for the water to land building. The other two team members will be the team leads for the land to space building.
3. Hand out a "water to land travel" building supply bag to each team.
4. Tell the teams that they will have 10 minutes to build a

- vehicle that will safely move them from water to land.
5. After 10 minutes, have everyone put down their supplies.
6. Have each team present their vehicle and explain why they built it the way they did.
7. Have each team change their team leads (as explained in step #2).
8. Hand out a "land to space travel" building supply bag to each team.
9. Tell the teams that they will have 10 minutes to adapt their current vehicle so that it can travel from land to space safely. They can use any of the supplies to change their vehicle. They can remove any previously used building items as they adapt their vehicle.
10. Begin the timer for 10 minutes. After 10 minutes, have everyone put down their supplies.
11. Have each team present their vehicle and explain why they built it the way they did.

### DEBRIEF ACTIVITY: IN A WORD (15 MINUTES)

1. Participants stand in a circle facing each other
2. As the facilitator, select participants to say the first word that comes to mind when they think about the activity.
3. If time allows, repeat the one word description but frame each round for words to relate to: leader challenges, follower challenges, communication strategy, design process, use of resources, or other specific topics.
4. As the facilitator, provide a short summary of some of the words you heard from the participants' experience during the activity today and close with the following information.

Leadership comes in a variety of forms and is not just the person that tells everyone else what they should be doing. Leaders are people that work as a team and assist others in achieving the group's goal. Leaders want everyone to be successful and serve as the support for helping others

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**ACTIVITY 3.10: LEARNER ASSESSMENT**

These questions are about things you learned during this activity. Please check the circle that best describes you.

**Q1** I can work as both a leader and a follower in a team.

- Not at all like me
- A little like me
- Somewhat like me
- A lot like me

**Q2** I can work to support the leader in a group.

- Not at all like me
- A little like me
- Somewhat like me
- A lot like me

**Q3** I can adapt and change in order to reach a team's goal.

- Not at all like me
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