



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 1.9 DEPENDING ON OTHERS

### LESSON DETAILS

#### AGE/GRADE LEVEL

Elementary School

#### PREP TIME

None

#### LEARNER OUTCOMES

Youth will have a greater understanding of working in a team and utilizing nonverbal cues.

#### ACTIVITY TIME

1 hour 10 minutes (all activities combined)

#### SUCCESS INDICATORS

Youth will demonstrate the use of nonverbal communication skills while completing a team challenge.

#### MATERIALS LIST

- Yard stick (or broom stick, or something like either one)
- Flip chart paper
- Markers
- Playing cards

#### LIFE SKILLS

Teamwork, Leadership, Cooperation, Problem Solving

#### SUGGESTED SPACE

An open space with minimal obstructions and space for youth to move around

#### NATIONAL STANDARDS

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

#### SUGGESTED GROUP SIZE

Minimum of 4 youth

21st Century Skills/Learning and Innovation Skills/CRITICAL THINKING AND PROBLEM SOLVING/ Reason effectively, use systems thinking, makes judgements and decisions, solve problems

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

#### REFERENCES

Life in Space  
[https://www.esa.int/esaKIDSen/SEMG2JWJD1E\\_LifeinSpace\\_0.html](https://www.esa.int/esaKIDSen/SEMG2JWJD1E_LifeinSpace_0.html)

Gravity Facts  
<http://www.sciencekids.co.nz/sciencefacts/gravity.html>

How Do Astronauts Communicate in Space?  
<https://tellmewhyfacts.com/2007/12/how-do-astronauts-communicate-in-space.html>

### INTRODUCTION

**C**onflict is a natural event and can be necessary to move relationships and projects forward. It provides an opportunity for discussion and supports open-mindedness. Without conflicts there may not be change or innovation.

On the International Space Station, astronauts are weightless and float unless they are held down by seatbelts. There is no up or down. There is no difference between a floor and a ceiling. This can make it very challenging to move from one place to another, to eat a meal, or to conduct a science experiment.

Movement is not the only challenge that astronauts have to overcome when living and working on the International Space Station. Sound can also be a challenge.

In order for one to hear sound it must travel through air (gas particles) of which space has very little. Sound can only travel through a solid, liquid or gas. Space, being an almost perfect vacuum, does not allow sound to travel and be heard by the ears. Sound is vibrations of air particles, so any "sound" that is heard in space has to come from another source.

As such, astronauts communicate with each other in space when they are spacewalking through the use of radio waves. Radio wave signal are sent to their headsets which then translates the signal into the form of sound. Astronauts can however, talk to each other as if they were on Earth only when they are in their space ship. Here, there are enough air particles to vibrate and take the sound to their ear drum.

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EXPEDITIONARY SKILLS FOR LIFE

## DEPENDING ON OTHERS, CONTINUED

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### ACTIVITY INSTRUCTIONS

#### ACTIVITY: WEIGHTLESS STICK (30 MINUTES)

Explain that in space, gravity - or the lack thereof - is an issue our astronauts have to deal with every single day. To help prepare you for the challenges of working in a weightless environment, NASA has provided you and your team with a "Weightless Stick" (the yard stick). This stick is very fragile and needs to be handled carefully. Your team's mission is to lower the stick to the ground, without letting it fall and break.

Directions:

1. Divide the group into small teams of 4-6 youth per team.
2. Have each team line up in two columns, shoulder to shoulder. The columns should face each other with about two feet between the columns.
3. Youth should stand with their index finger extended; all fingers should be level and at about waist height.
4. Once youth are situated, explain that the youth are completing this task in space so there is no verbal communication. That means they cannot speak to each other but must communicate with their eyes, expressions, gestures, and other non-verbal cues.
5. The facilitator places the yard stick on the outstretched index fingers of the youth. One yard stick per team.
6. Allow the teams to lower their sticks.

Note:

Though the object is to have the "Weightless Stick" lowered to the ground, there is a natural inclination to 'raise' the stick. No one wants to be the person to drop the stick, and as such they find themselves actually raising the stick. If there is more than one facilitator available, teams can "race" against each other to see who can lower their Weightless Stick first. Throughout the activity, the facilitator is encouraged to remind the teams that this task is to be completed without verbal communication.

Discuss:

- What did you learn while working with the experimental anti-gravity stick?
- Describe how you communicated with each other while working with the anti-gravity stick in ways that did not involve talking.
- Describe how the stick seemed to be "weightless" at some points. Why do you think that happened?
- How did you start to realize what needed to be done to accomplish the goal?
- How were decisions made?
- What problems came up?
- How were they handled?
- What was most challenging?
- What key elements did you learn?
- Why is it important to vary communication styles when working as a team?
- In what ways did you help each other?

#### DEBRIEF: PLAYING CARD MATCH-UP (20 MINUTES)

Explain that you are going to hand out cards to everyone but youth cannot speak to one another, nor can they show their card to anyone else. Make sure youth understand these two restrictions before beginning the game because it is these two rules that force youth to engage in meaningful nonverbal communication in order to work together. Give each youth a card and instruct them that their job is to organize themselves into groups according to the suit (spade, diamond, club or heart) on their card.

Discuss:

- How did you communicate to come together as a group with the same suit?
- Was the communication used the same or different from the last activity? Why or why not?
- Did anyone take on a leadership role? If so, what did that role look like?

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**ACTIVITY 1.9: LEARNER ASSESSMENT**

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

**Q1** If I want to tell someone on my team something without speaking, I can still find a way to communicate with them.

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

**Q2** I understand that I can't do everything by myself.

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

**Q3** If my team wants to do something together, we can find many ways to reach our goal.

- Not at all like me
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