



United States
Department of
Agriculture

NIFA

National Institute
of Food
and Agriculture



[https://nifa.usda.gov/
program/4-h-positive-youth-
development](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 3.9

SPACE WALK

LESSON DETAILS

AGE/GRADE LEVEL

High School

LEARNER OUTCOMES

Youth will learn the importance of engaging all team members in a task that requires the sharing of limited resources.

SUCCESS INDICATORS

Youth will demonstrate their ability to engage as a team, share limited resources, and communicate clearly by completing a team challenge.

LIFE SKILLS

Leadership, Communication, Teamwork, Problem Solving, Critical Thinking, Decision Making, Contributions to group effort, Goal Setting

NATIONAL STANDARDS

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

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

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

PREP TIME

15 minutes

ACTIVITY TIME

2 hours (all activities combined)

MATERIALS LIST

- "Protective Boots," which can be carpet squares (or odd-shaped flat pieces big enough for 2-4 adult feet to be placed on), card stock paper, placemats, dish towel, rug pads 12", bandanas, old dish towels
- Rope or cord (various lengths)
- Optional items such as bandanas, balls (tennis ball, baseball, football types), other props
- Paper
- Pens, pencils

SUGGESTED SPACE

Field or open area, gym floor, large classroom, large hallway. Try to use an area surface that is safe and clear of any large debris or slip hazards. Some students may fall on the ground and they will need room to move.

SUGGESTED GROUP SIZE

5 to 30. You can do this with one group of five or multiple teams with up to 30 depending on your area and the resources available.

REFERENCES

How to be More Effective with Limited Resources
<https://blog.teamwork.com/how-to-get-more-done-with-less/>

Quicksilver; Karl Rohnke, Steve Butler, NASA moon survival, The 175 Best camp games; Kathleen, Laura and Mary Fraserl

INTRODUCTION

Planning intelligently also goes a long way in overcoming challenges in leadership. Do not depend on a single plan. It is always better to be ready with Plan B and Plan C. Think of this as an ideal way to be creative in your thinking and innovative in your approach. So, what measures can you take if you have to get more done with less? Here are some ways of mastering your resources:

Prioritize Your Tasks

- It sounds obvious and yet a kind of paralysis can set in when a team finds itself having to cope with less.
- Decide what needs your attention urgently and act accordingly.
- Be decisive and realistic. Will that approach you just selected really deliver the result you need?

Effective Planning is a Winning Strategy

- With resources more stretched, and possibly fewer people, you need to think outside the box. Effective planning is key to managing slimmer resources.
- Decide what needs to be done first and ensure everyone is onboard.
- Draw up a timeline for action.
- Be proactive rather than reactive.
- Ensure all members of your team know their roles and the necessity of delivering.

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EXPEDITIONARY SKILLS FOR LIFE

SPACE WALK, CONTINUED

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Keep Your Lines of Communication Open

- You may have clear goals, but do you have a good communication strategy within your team to bring people along with you? Can you inspire people to work harder? Here are some tips:
- Ensure everyone knows what is expected of them.
- Be clear about your objectives.
- Be open to other views and you'll keep your team onboard.

Resources are finite, and you have to think smarter with less. There is no room for wastage, so ask yourself how you can best use what you have to maximum effect. Delivering results with limited resources is something everyone faces at some point in their career. The ability to quickly adjust and still deliver is an important professional skill.

ACTIVITY INSTRUCTIONS

ACTIVITY: SPACE WALK (60 MINUTES)

Explain:

Your spaceship and team has landed on the surface of an alien planet. However, you are far from the cargo ship that had landed earlier. The cargo ship has needed supplies like food, shelter, medical equipment and protective gear. Your goal is to get your team safely across the treacherous landscape of this planet to the cargo ship. You have limited resources and time.

You are also finding that this planet's surface will eat away at your space boots. You will need to travel over the surface using protective pads under your boots/feet. (You may show them what they will be using as pads.) Oxygen levels are limited, so you must move the whole team or crew to the cargo ship at once.

Your team will need to choose a Captain. The Captain is responsible for handing out materials and giving instructions to the team. The Captain should be the last to exit the spaceship from (Point A) as your team steps across the surface toward the cargo ship. Note: Captains may change throughout the exercise.

Objective: Get your team safely from the spaceship (Point A) to the cargo ship (Point B) without touching the surface. You may only use the "Protective Boots" provided to protect you from the surface. Those materials are limited. Obstacles and challenges will occur as your team crosses the area. Your Captain and crew must communicate how to overcome the obstacles and complete the task.

.Directions/Rules:

- Designate an area behind a rope or a marker on the ground as the spaceship "safe ship" (Point A) and another area far enough apart to have the group have to recycle their materials or use of their boots to get to the cargo ship (Point B). (Note: you can use rope, chalk, tape, or cones to designate these areas)
- Divide the group into teams or crews and have each crew select a Captain.
- Give the Captain one less protective boot than there are number of crew members.
- Anyone that touches the ground must go back to the spaceship (Point A) to repair their boots.
Safety note: It's not recommended that participants piggy-back on others.
- Initiate a challenge scenario as the team(s) make their way across the area or have the Captain(s) draw randomly the cards.

You may introduce one challenge scenario at any time or none at all. The challenge can be for all teams or just one.

You may allow them to complete the exercise without any challenges first and then introduce challenges and time constraints in other rounds.

Please feel free to make variations to the challenges or add your own challenges to best fit your audience.

Example Challenge Scenarios :

- You are finding that if the boots are not being touched by your crew/team member they will be "eaten" by the alien surface. Your team must have a hand, foot or body part on the protective boots at all times! If they are not, the boot is taken away.

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EXPEDITIONARY SKILLS FOR LIFE

SPACE WALK, CONTINUED

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- One of the crew has a malfunction in their communication device located in their helmet. The Captain chooses someone who can no longer speak or give any verbal feedback.
- One of your crew members gets surface dust in their eyes and can no longer see. The Captain can choose who will need to wear a blindfold (note: can use a hat, bandana or something to cover crew member's eyes).
- One of your crew members rips their space suit and now needs medical attention. The Captain must assign a doctor to attend to the crew member. The two crew will need to remain together while the patient and doctor hold a small rope or object between them. Or they may just hold hands.
- Gloves fall off a team member and they lose the use of their hands. The Captain will choose a crew member who will now hold a ball (ex. tennis ball, football or other object) in their hand.
- Your crew comes across a large crater and must go around it. The Captain must instruct the team to go 4 steps to the side (either way) and then proceed on (this can be a chair, rock, or other obstruction).
- Your crew comes across a deadly river. You must construct a bridge to cross it. You will need to lay down additional props or boots. Use a bandana, paper, 2 x4, rope, etc., to get your crew across.
- The battery packs for your suits are losing energy. You need to have them charged every third step. A ball or object will need to be passed or handled by all crew members after the third step in order for the crew to proceed.
- The planet has turned on its axis and you now lose contact with the communication satellite. The Captain and crew now have to whisper information to each other.

Space Walk Variations

- A new Captain can be chosen after a certain time or a number of attempts.
- You may also make a game out of this by pitting teams against each other. You could also introduce a time element; trying to get under a certain time or beat their

previous time.

- Other objects or props may be used; hats to cover the eyes, one arm in a shirt, an ankle tied to another, placing objects on the field where the teams have to go around or get over them. You can also construct your own scenarios to introduce to the teams. Be creative!

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

Directions:

Youth should sit in a circle (if group is larger than 20, divide into groups of 10-15). e

Use a ball or other object to toss about to various youth who will answer the following questions.

After a participant answers one of the questions below, they may toss the ball or object to another to field the next question.

- What were some of the challenges you or your team faced?
- How did you overcome the challenges?
- How did your team solve the problem?
- How often did you change your plan?
- How did your team communicate the plan or any changes?
- How did you feel when the plans changed?
- What was it like to be the Captain?
- What was it like to be a crew member?
- How did your team adapt to new challenges or adversity?
- What would you have done differently?
- What type of leadership did the Captain(s) display?
- Was your team successful? Why or why not?
- How would this relate to what NASA does?
- How can you develop and utilize these skills in your life?

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ACTIVITY 3.9: LEARNER ASSESSMENT

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

Q1 I can work with others to change a plan when the plan is not working.

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

Q2 I can change my approach if what I am doing is not working.

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

Q3 I can be a team player even when it is not my plan that the team chooses to perform.

- Not at all like me
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