Copy Cat
Teacher Version

Adapted from the Putnam Northern Westchester BOCES Outdoor Education Program's Challenge Course

Introduction & Purpose

This activity focuses on the role of communication in working as a team. We all know how difficult it is to communicate clear and concise directions to another person. The person who is listening to the directions often needs to ask questions to clarify a point. Other times, long after you have completed giving the directions, you think of a forgotten detail or may discover a better way to explain a component of the directions. This activity will provide your team practice in giving clear, concise directions, listening carefully, and asking directive questions while receiving directions.

Objective

Students will instruct each other on how to arrange a variety of paper cut-out shapes into an original design. Students will also practice listening and asking questions about the given instructions.

Materials Needed:

- 1 set of Copy Cat Shapes for each team member (located in the Student Version)
- A few pairs of scissors, ideally one pair for each student
- Idaho TECH Lab Notebook

Procedure

The students do not have information about this activity in their booklet, other than the Copy Cat Shapes and an example of a design, so you will need to provide directions for this exercise.

1. First, have the students cut the shapes out. Make sure they understand that each student should keep his/her shapes separate from other students' shapes (each student should have a complete set of shapes – do not mix sets!).
2. Have the students pair off and sit back to back with a table/desk in front of each of them.
3. Have each pair decide who will be the **"Builder"** and who will be the **"Explainer"** for the first part of the round. Each student will have a chance to play both roles.
4. You may want to set a time limit for each puzzle *(there will be a total of four)* -- five minutes per puzzle construction has been found to be sufficient for this activity.
5. During each round of the exercise, walk around and listen to the directions being given, and use what you hear as examples of clear communication and poor communication.

Rounds 1 – 4

1. **Round 1: One-Way Communication**

   Steps:

   a. Have the "Explainer" arrange their set of shapes into a single design of some sort, ***using every shape in their design***. The design must be built so that each piece is touching another piece, but none of the pieces should be overlapping *(refer to the example provided in the Student Version).*
   b. The "Explainer" must then explain to the "Builder" how to build the design with their set of shapes ***without looking at each other*** (No peeking! ☺).
   c. The "Builder" must construct what they hear described ***without speaking or asking questions***.
   d. Once the allotted time has passed (e.g., five minutes), the partners can compare designs to see how close the "Builder" came to replicating the "Explainer's" design.
   e. Have the members of each pair switch roles while still remaining back to back.
   f. After the allotted time has passed, again allow the partners to compare designs.

   Debriefing:

   Start a discussion with your students about clear and concise communication. Most often, students will state that not being able to talk or ask questions was the most difficult component of the process, and that asking questions would have made it much easier.

   

   - How can one person assure that what they are saying makes sense to the other person?
   - Did you have good success in building what the Explainers described? Why or why not?
   - What was difficult in the process?
   - How could it have been easier?

2. **Round 2: Two-Way Communication**

   Steps:

   a. Have each pair from round one change roles again, still sitting back to back. Together, each pair must try to improve their results from round one.
   b. Have the "Explainer" build a new design to explain to the "Builder."
   c. This time, however, the "Builder" is allowed to speak and ask questions *(but there is still no peeking allowed!).*
   d. Once the allotted time has passed (five minutes), partners should compare results.
   e. Then, have the partners switch roles for a last time, and complete the exercise again, comparing their results after time has expired.

   Debriefing:

   Bring the group back together and ask them if they had better success using two-way communication.

   - Were they able to complete the design? Why or why not?
   - Did two-way communication provide better accuracy between designs, but slow down the process? *(Most often, once questions and answers enter the exercise, the students are not able to complete the design entirely, but what they do complete contains higher accuracy than the one-way communication design process.)*

- What makes a good Explainer? *(Answers might include slow, specific, and clear instructions.)*
- What makes a good Builder? (*Answers might include good listening skills, asking good questions, and patience. These are all qualities that are necessary to work together towards the end result of producing a Mars Rover.)*
- Have the students record their thoughts and answers in their Lab Notebook.

3. Round 3: Team Communication

Steps:

a. Select (or have the team select) one student to be the "Explainer," and have the rest of the team act as the "Builders."
b. Arrange the "Explainer" and "Builders" as stated in previous rounds, with the "Builders" using only **ONE** complete set of shapes.
c. Depending on how much time you have available and what your team needs to practice the most, you can either start with one-way communication (builders cannot speak or ask questions) or skip to two-way communication (builders may speak and ask questions).
d. Have the "Explainer" create a design, and then follow the procedures outlined in round one and two to complete round three.
e. A suggested time limit for this round is ten minutes. Once the allotted time has passed, let the team compare the designs. If you wish, you may allow all team members to act as the "Explainer," or complete the round only once or twice.

Debriefing:

Often, it is found that differences in individuals create problems in teams, especially in respect to communication. Help the team recognize that effective communication is essential to the teamwork process if they want to succeed in the Mars Rover Challenge.

- What did you learn after completing all three rounds?
- Was it more difficult to have several builders (Round 3), or more difficult to have only one builder (Rounds 1 and 2)? Why or why not?
- How did the building group deal with having several ideas at one time?
- Did anyone in the building group fall into a leadership role?
- Did builders take turns being leaders, or did only one person play that role?
- How well did the building group communicate with each other? Listen to each other?
- Did it take longer to build this design than it did with only one builder? Why or why not?
- Was the design constructed by the building group more accurate than the design made by a single builder? Why or why not?
- Have the students record their thoughts and ideas in their Lab Notebook.