



Leonardo's Bridge



Inspired by Leonardo Da Vinci's elegant design for a self-supporting bridge, this exercise shows how important it is to work together to overcome obstacles and bridge divides. Groups must literally meet in the middle to succeed.

How does it work?

Two teams are challenged with building a single 13-foot bridge using only 28 sticks. No tools other than their own creativity may be used, and they must collaborate to devise a way to build the bridge over an imaginary 6-foot river that separates them. They cannot cross the river, which is marked with ropes.

The teams brainstorm alone at first but eventually join forces to create the span together. Some teams will build their halves independently, then meet in the middle, while others will construct the bridge in its entirety. Either way, the stable, self-supporting structure is a visible metaphor for creating team stability, finding a way to cross a cultural divide, or overcoming fear of failure.

What do you need?

People (min / optimal / max): 6 / 10 / 14

Time for Activity: 45-60 minutes

Materials: 28 red wooden sticks, 28 small sticks for planning, 4 x 12 foot ropes

Workspace: A large open space at least 20 x 30 ft

Instructions

1. To prepare for the activity, use two of the enclosed ropes to create an imaginary river 5-6 feet wide. Then use the other two ropes to create a 3-foot 'riverbank' on each side of the moat. The total distance from one side to the other (riverbank + river + riverbank) should be 10-12 feet. This is distance that the new bridge must span.
2. Divide your group into two small teams of equal size and give each team 14 large sticks.
3. Explain the goal of the activity. You can say something like, *"Your task is to build a self-supporting bridge that spans both the river and the riverbanks on each side. You will work with your small team at first, using half the sticks to brainstorm and devise a construction plan for the bridge. Then after 15 minutes, both teams will meet at the table to work on a model together using small sticks."* Ideally, the two teams will not be able to see each other during the planning phase.
4. To make this easier, you can ask each team to send one person on a fact finding mission first. Have each representative view a construction photo and experiment with the sticks for 3 minutes, then report back to help lead their team's 15-minute planning phase.
5. Once the model is complete and real construction is about to start, outline the rules:
 - The bridge must span both the river and the riverbanks.
 - Construction must begin on both sides of the river at the same time.
 - No one can be in the river during construction.
 - The riverbank rules vary by challenge level:
 - Only two people can stand on the riverbank with both feet (easy).
 - Only one person can stand on the riverbank with both feet (medium).
 - Only two people can stand on the riverbank with one foot only (hard).
6. Start the activity.
7. Observe the activity. Some groups will build half the bridge on each side, then bring the two halves together in mid-air over the river. Others will toss all the sticks from one side of the river to the other for one team to work on, then move the whole bridge into place in its entirety. Each approach will give you useful details for the debrief.
8. If a group is struggling and they have already had ample time to find their own solution, you can intervene with a comment such as, *"This has not worked very well yet, has it? What changes can you make now in terms of communication and coordination to help you reach your goal? What has worked so far and how can you use this?"*

9. Lead the debrief, basing the conversation on your original intent for the activity. Here are some sample questions to ask:

- How did you feel as a team?
- How did the smaller teams support each other?
- What were the key moments in the construction of the bridge?
- Did you stick to your assigned roles (if any)?
- What have you learned from this activity that you can apply in real life?

Variations

- Take this activity outside and stage it over a natural obstacle such as a small stream or forest path.

Common Sense Caution

This activity requires participants to move up and down, kneel, squat and move around on their feet. Some participants may experience dizziness, nausea, vertigo or headaches, and may fall or stumble as a result. If a participant suffers from balance problems, vertigo, dizziness, lightheadedness or orthopedic problems, he or she should refrain from participating in this activity or sit in a chair while participating.

Participants who are pregnant or suffer from back pain or other orthopedic injuries should consider refraining from participating in this activity.

Choose the room or area for this activity carefully. Participants will move around and could lose awareness of their environment as they focus on the exercise. Choose a room or area free of steps, posts, furniture, debris or other potential trip hazards. The floor should be dry, level and stable.



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