Hands-On

I believe it's critically important to carry out a debriefing session after every practice Spontaneous problem the team does. This process will help the team learn from the experience and understand how to improve their future solutions. In the past many coaches have asked me how I recommend that they carry out Spontaneous practice and debriefing sessions, so here are my

Tips for Hands-On Problem Debriefing:

- Do the debriefing immediately after the team solves the problem, when it is all fresh in everyone's minds.
- Whenever possible, determine the failure point of the team's solution.What part of the structure broke/failed first?Why did that happen? Could it have been prevented?
- At a minimum, address use of materials, division of labor, time management and communication.
- Discuss ways to improve the team's solution. Make sure everyone has their say.
- Have the team develop a plan everyone will support, then do the same problem a second time.
- Work through the debriefing process again after the second solution, focusing on what the team learned. Often the second attempt is much more successful than the first, but not always. Be sure the kids know that it's OK if the changes they made didn't improve their solution because they've stilled learned from the experience, and will apply that knowledge to future Hands-On solutions.

Basic Tower Problem

Set up: You need a tabletop or open area of the floor where the team can build
Supplies: 15 straws, 10 Q-Tips, 10 paperclips, 10 toothpicks
Time: 5 minutes

Important vocabulary the team must understand:
Freestanding means not supported by another structure or object; not relying on or linked to anything else; independent. This means that no team member can be touching the structure, and it can't be leaning against, or touching anything other than the floor or tabletop it is standing on.

Problem:
Using only the materials provided, build the tallest possible freestanding tower.
The problem is over when the team asks to be scored, or when time is up, whichever comes first.
The tower must be freestanding for 15 seconds after the end of the problem in order to be scored.

Scoring:
- 5 points for each inch in height, measured straight up from the floor (or tabletop) to the highest point of the structure. (If the tower leans don't measure along the curve.)
- 1-20 points for teamwork

Coaching / Judging Notes:

- There are no stickers or tape given in this problem.This forces the team to create other ways of fastening the materials together. I used 4 different ways of fastening the materials in my tower, but there are certainly more ways possible.
- How many different ways of fastening did your team use? Can they think of any others? Discuss this during the debriefing. If they struggled with putting and keeping the pieces together give them more materials and have them work on creating fasteners before they do the problem a second time.
- I've included pictures of my solution. It is definitely not the only way to solve this problem, and I'm sure it isn't the best possible solution either. There are probably plenty of people who would say I should have gone for 4 legs, and they may very well be right. I'm only including the pictures as evidence that the problem can be solved and a tower can be built without tape or