

HANDS-ON PROBLEM: Ramping It Up

A. When the team members enter the room, tell them this is a hands-on problem. They have one minute to select the team members who will solve the problem.

B. JUDGE READS TO TEAMS: (Do not read the material in parentheses)

1. In Part I, you will be given 5 minutes to discuss the problem and test your solution. You will then have 2 minutes to present your solution for score in Part II.
2. You may talk or ask questions at any time; however time will continue.
3. Your team's problem is to build ramps that extend from behind the foul line into the target areas, using only the materials given, and to release paper clips to slide down the ramp for score.
5. Team members may choose to build as many ramps as you wish. You will use the ramps to send paper clips into the target areas. Each paper clip will receive the number of points marked on the target area where the paper clip lands during Part II.
6. The 8 ½" x 11" sheets of paper may NOT touch the table at any point except behind the foul line and in a target area. Only the other building materials may touch the table beyond the foul line. You may alter any materials EXCEPT the paper clips. You may NOT use the paper bag in your solution.
7. At the end of Part I, your team will remove all paper clips and ramps to a point or points of the team's choosing behind the foul line, all team members will stand behind the foul line, and the team will release paper clips ONE AT A TIME for score. During Part II, no team member may extend any body part beyond the foul line.
8. During Part II, items will receive score as follows:
 - Each paper clip into a target area: Points designated on the target area
 - Each paper clip that lands someplace other than a target area: 0 points
 - 8 ½" x 11" inch paper touches the table at a point other than a target area or the area behind the foul line during Part II: - 100 point penalty
 - Teamwork: 1-20 points
 - Creativity of the ramps: 1-20 points
9. In order for a paper clip to be scored, some portion must rest in or on the target.
10. If a paper clip lands on the table, it is out of play and may not be retrieved. If a paper clip gets stuck on a ramp, the team may ask a judge to retrieve it and return to the team for another attempt. Once a paper clip leaves a ramp beyond the foul line, it is no longer in play, however, and may not be retrieved. If a paper clip lands someplace outside a target area, it is out of play and receives 0 points.
11. Only one paper clip may be traveling on any one ramp at a time. For example, if you have two ramps, then two may be traveling at the same time – one on each ramp – but two may not be traveling on the same ramp simultaneously.

(JUDGE: Repeat #3, "Your Team's Problem Is ..." and then begin 5 minutes for Part I.)

C. FOR JUDGES (AND COACHES) ONLY

1. Before the team enters the room, tape the target areas onto a large table as shown in the diagram. Place a "foul line" across the width of the table as shown.

2. Give each team the following materials in Part I:

In one paper lunch sack:

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|---|------------------------------|
| 1 flat wooden or plastic 12" ruler | 1 cork |
| 2 large paper clips | 1 6" square of aluminum foil |
| 1 unsharpened pencil (the type with flat sides) | 2 large rubber bands |
| 1 index card (3" x 5") | 1 plastic knife |
| 1 empty spool of thread | 1 birthday candle |
| 2 dice | 1 hair barrette or clip |
| | 2 sticky labels |

Materials loose on the table behind the foul line:

- 60 large (2" length) plastic-coated paper clips (available at office supply stores and other places)
- 4 sheets of 8 1/2" x 11" pieces of paper

You may substitute for any of the items, depending on the materials at hand. Be sure that substitutions allow for a ramp to rest on them in some way, but do not give them anything too simple to use as a support.

Note that the team may alter the items (such as folding up the index card) but do not tell them this unless they ask. They may group items together (using the rubber band, etc.), but do not tell them this unless they ask.

Note that not all team members are required to release paper clips. Do not tell them unless they ask. Note that the team may move the ramps to reposition them during Part II, so long as the team remains entirely behind the foul line. Paper parts may only touch the table behind the foul line and inside a target area after repositioning. Incidental touching of the table during repositioning is OK.

Be certain that only one paper clip is traveling on a given ramp at a given time in Part II. If the team releases more than one, or releases a second before the first comes to rest, remove the "illegal" paper clips from play and warn the team. The team MAY release one paper clip each on several different ramps at the same time. Do not tell them this unless they ask.

- L Love '07

Targets: Cut paper shapes:

- 4" x 6" rectangle (10" from foul line)
- 3" x 3" square (20" away from foul line)
- 3" diameter circle (28" away from foul line)

