

Please note: "Spontaneous Problem of the Week" will take a break from Dec. 15-Jan15. Please check the archives for practice problems during this time.

HANDS-ON PROBLEM: Balancing Act

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 2 minutes to discuss the problem and test your solution. You will then have 3 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 balance as many of the items you are given as possible. You must balance at two or more items at a time, one or more on either side of the ruler. You are to place the ruler across the curved side of the can (at right angles to the ends of the can.) You will then balance the given items at a time during Part II for score.
4. Team members may choose to balance the items in any order. Bonus score will be given for being able to balance all the items within the 3 minute time period.
5. Team members may decide who will do the balancing, and in what order they will perform the balancing act.
6. Once an item has been balanced for score, it must be placed in the paper bag. It may not be counted for score again, although a team member may retrieve an item from the bag and use it again. However, after the first time an item is used, it will not receive further score.
7. During Part II, items will receive score as follows:
 - Each item placed on the ruler and balanced with other item(s) (first time use only):
2 points per item
 - Teamwork: 1-20 points
 - All items balanced during the 3 minutes: 20 bonus points
8. In order for an item to be scored, it must rest on the ruler for at least 2 seconds with another item on the opposite side of the ruler and without the ruler's touching the table surface and without any team member or other item touching the ruler: the ruler must balance freely without any support. The ruler may not be attached to the can in any way.
9. In order for an item to be scored, no portion of the item may touch the surface of the table (*or floor, if can is taped to a floor*) while it is balancing.
10. After two or more items are balanced and counted for score, those items may be removed, placed in the paper bag, and another two or more items may be balanced.
11. You may use only the items given.
12. At the end of Part I, all items must be laid out individually on the table before Part II begins.

(JUDGE: Repeat #3, "Your Team's Problem Is ..." and then begin 2 minutes for Part I.)

C. FOR JUDGES (AND COACHES) ONLY

1. Before the team enters the room, tape a soup can (or can of similar size) firmly to a table top or other flat surface, placing the tape around the curved part of the can, down the sides, and firmly onto the surface to make it secure. Use more than one length of tape, if necessary.

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

- 1 empty paper bag
- 1 wooden or plastic 12" ruler, flat on both sides

- 2 large paper clips
- 2 unsharpened pencils (the type with flat sides)
- 1 index card (3" x 5")
- 1 empty spool of thread
- 1 key (such as a house key)
- 1 small pair of scissors, such a manicure scissors
- 1 paintbrush
- 1 pad of Post-It® notes
- 1 teaspoon
- 1 refrigerator magnet
- 1 "trash" CD
- 1 legal-sized envelope
- 1 napkin ring
- 1 sample-sized tube of toothpaste
- 2 dice
- 1 cork
- 1 large rubber band
- 1 small spiral notepad
- 1 6" length of string
- 1 grocery store receipt
- 1 safety pin
- 1 paper cup
- 1 small container of spices (small plastic jar)
- 1 plastic knife
- 1 birthday candle
- 1 hair barrette or clip
- 1 ice cube

You may, obviously, substitute for any of the items, depending on the materials at hand. Be sure that substitutions are not entirely spherical (like a ball). Keep some objects light and some heavier. Include at least one heavy object that will need more than one item to balance (or will need placed close to the fulcrum).

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 perform the balancing. Do not tell them this unless they ask.

