

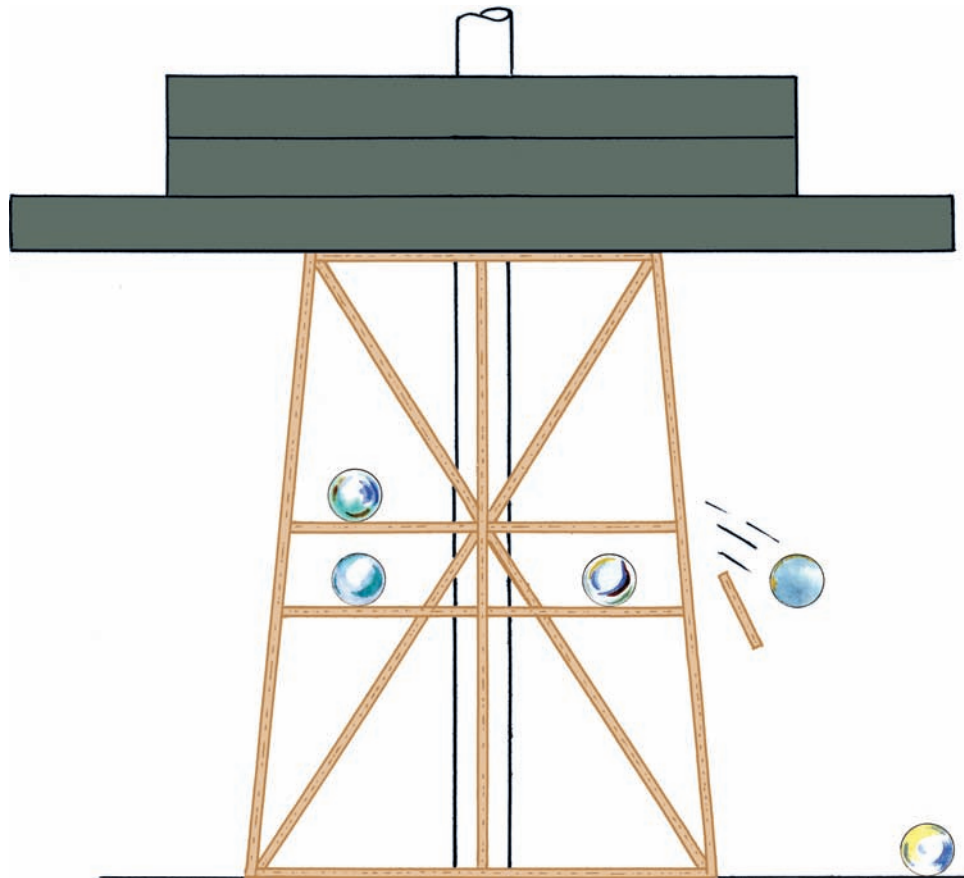


# Odyssey of the Mind™

2014-2015

Problem No. 4:

## Lose Your Marbles



# Lose Your Marbles

## Problem No.4: Divisions I, II, III & IV

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When someone is feeling scatterbrained or forgetful they might exclaim, “I’m losing my marbles!” In this problem, we are asking teams to *use* their marbles so they can *lose* their marbles, but in a controlled —and creative way!

### A. The Problem

The team’s problem is to design, build, and test a structure, made only of balsa wood and glue that will balance and support as much weight as possible. The structure will also hold five marbles that will be released one-at-a-time during weight placement as a result of a team-created device removing a piece of the structure. The placement of the weights onto the structure and “losing your marbles” will be integrated into the theme of the performance.

The **creative emphases** of this problem are on how well the performance integrates weight placement, the theme of “losing your marbles,” the design of the team-created device, and how it releases the marbles one at a time.

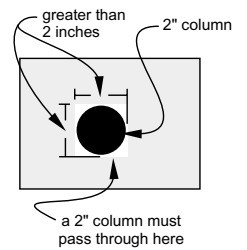
The **Spirit of the Problem** is to design and build a structure of balsa wood and glue that is tested by having weights placed onto it. As weight-placement occurs, the teams must release marbles using a team-created device that removes a part of the structure. After the crusher board and one additional weight are placed on top of the structure, the first marble will be released. After the next weight is placed, the team will use its device to release another marble, and so on. Weight placement and the theme “losing your marbles” will also be integrated into the performance.

### B. Limitations (Italicized words/terms are defined in the *2014-2015 Odyssey of the Mind Program Guide*.)

1. **General Rules:** Read the *2014-2015 Odyssey of the Mind Program Guide*. This manual is updated each year and includes basic limitations for this problem and the forms required for competition. This problem cannot be solved without referring to the Program Rules section of the guide.
2. **Problem Clarifications:** The *Odyssey of the Mind Program Guide* explains the types of questions about the rules that will be clarified and the ways to submit those questions. General problem clarifications can be accessed at [www.odysseyofthemind.com/clarifications/](http://www.odysseyofthemind.com/clarifications/). Problem clarifications submitted after February 15, 2015, will not be answered. CCI may find it necessary to issue clarifications after that date, so continue to check for them after February 15 and before each competition.
3. The time limit for this problem is 8 minutes. Time starts when the Timekeeper says, “Team begin” and includes setup, Style, and the presentation of the problem solution.
4. The cost limit for this problem is \$145 (U.S.). The combined value of the materials used during the demonstration of the team’s solution, including Style, must not exceed this amount. The *Odyssey of the Mind Program Guide* explains the cost limit and lists items that are exempt from cost.
5. The team’s solution will include:
  - a. a **structure** made of only balsa wood and glue.
  - b. **5 marbles** that are contained in the structure to be released one at a time.
  - c. a **team-created device** that completely removes a piece of the structure that then releases a marble.
  - d. testing the structure by placing weights onto it.
  - e. the integration of weight placement, and the theme “losing your marbles” into the performance.
6. The **structure**:
  - a. must be designed and built by team members without any outside influence (see B21).
  - b. must be made of only balsa wood and glue. It cannot be artificially strengthened, and no other materials can be part of the structure.
  - c. may be assembled using other items and/or devices; however, these must be removed before weigh-in at the competition.
  - d. must weigh no more than 18 grams.
  - e. must be a minimum of 8” (20.32 cm) in height when resting on the Tester base and supporting the Crusher Board (see Figure B). It cannot have any extension pieces used for meeting height limitations only.

- f. must hold 5 marbles and have removable pieces that will release them one at a time. The weight of the marbles do not count towards the structure's weight.
- g. must fit entirely within the perimeter of the Tester base without touching the corner supports of the Tester.
- h. must have an open area running the entire height that will accept a column that is 2" (5.1 cm) in diameter. Therefore, the opening in the structure must be greater than 2". This opening will be measured at weigh-in. The safety pipe must be in the opening of the structure during weight placement (see Figure A).

**Figure A: Top View of the Opening**



7. The **marbles**:

- a. must be sized 9/16" to 5/8" (14 mm – 16 mm).
- b. must be round glass balls that fit through a measuring device at weigh-in.
- c. can be anywhere within the structure as long as they do not touch anything else until they are released during weight placement, for example, they cannot rest on the tester base or touch the crusher board. Marbles cannot be placed in the 2" open area (see Figure A and 6h).
- d. can be placed in the structure any time the team wishes. In weigh-in, after judges check the size of the marbles, they must then be placed in the structure to demonstrate how it is designed to hold them. The team may then choose if it wants the marbles to remain in the structure or to remove them. The marbles can be in place any time before weights are placed on the structure.

8. The **balsa wood** used in the structure:

- a. must come from only *commercially produced* strips of balsa wood. No other type of wood or any variation of balsa wood may be used. Balsa wood may be purchased through [www.odysseyofthemind.com/shop/](http://www.odysseyofthemind.com/shop/) — any balsa purchased from here during the 2014-15 program year will be considered as being within limitations. Teams must show an invoice from CCI that shows the purchase date.
- b. must have a cross section no greater than 1/8" wide x 1/8" deep (0.32 cm x 0.32 cm). Some commercial cuts vary, so the maximum allowed of either dimension is actually .135" (0.33 cm), which is slightly greater than 1/8".
- c. must be in strips at least 36" (0.91m) long when the team receives it.
- d. cannot be hand-picked by anyone other than the team members. Team members may request wood to be from a commonly known grade, but no one else may sort and pick specific pieces. If the wood is handpicked by anyone other than the team members, the judges will assess an Outside Assistance penalty.
- e. must be cut by the team. The only exceptions are the perpendicular end cuts of the original strip. If a cut is made by anyone other than the team members, the judges will assess an Outside Assistance penalty.
- f. may be marked and/or colored. However, it cannot be artificially strengthened in any way.

9. If **glue** is used in the structure:

- a. the team can use more than one type of glue.
- b. it must be used as purchased. That is, nothing may be added to it, nor may it be mixed with anything unless the manufacturer specifies that two ingredients combine to form the glue.
- c. it must be a brand with the word "glue," "epoxy," "cement," or "adhesive" printed by the manufacturer on the tube, container, box, or accompanying material.
- d. the use of an accelerant is not allowed. Non-chemical methods used to modify the drying process, such as the application of hot or cold air that does not include the addition of a chemical or material, are allowed.

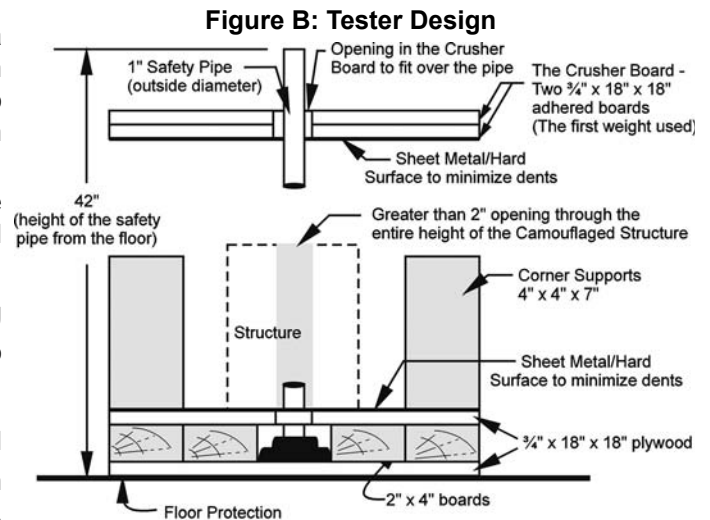
10. The **team-created device**:

- a. must be manipulated by a team member to remove a piece of the structure without the team member *touching* the structure, the marble, or the piece to be removed. No team member may reach under the crusher board once weights are placed, see C8.
- b. must remove a piece of the structure in order to release a marble. This means that the piece is no longer attached to the remainder of the structure. The piece to be removed can be any size, but the judges must be able to see the piece and be able to check it if necessary. It can rest on the crusher board once removed.
- c. can be anything the team wishes.

11. **Releasing the marbles**:

- a. After the crusher board and one additional weight are placed on top of the structure, the first marble will be released by removing a piece of the structure with the device. After the next weight is supported, the team will use its device to release another marble, and so on. Once all the marbles are released and pieces are removed, weight placement can continue as usual.

- b. If more than one marble is released at a time, the structure is not considered broken. Teams will receive score for one marble per round, even if more than one marble is released. Weight-placement continues and the team can try again once another weight has been placed.
- c. If all the marbles are accidentally released, or a marble does not fall out as planned, teams can continue to place weights, but also must continue to remove the pieces of the structure as described in B11a.
- d. Teams are not allowed to replace a marble in the structure once it has been released. Released marbles are only scored once.



- 12. The **team-created performance** can be about anything as long as it incorporates the placing of the weights onto the structure and the theme “losing your marbles.”
- 13. The team must use only the weights and Tester supplied by the Tournament Director. These can be used only in the normal process of placing weights; for example, the weights cannot be used for Style, the Tester cannot be decorated, etc.
- 14. Team members must place weights one at a time onto the structure. The first weight must be the Crusher Board supplied by the Tournament Director. The Crusher Board will count toward the total weight held.
- 15. **Division I** teams may have an adult (18 years of age or older) assist\* at least one team member in placing weights heavier than 20 pounds. **Division II** teams may have an adult assist\* at least one team member in placing weights heavier than 40 pounds. In **Divisions III and IV**, team members must place all of the weights themselves. For all divisions, the team must decide the order in which it will place the weights.

*\*The adult can only help to place these weights. A team member must select the weight and be actively involved in bearing and aligning the weight as it is placed on the stack. An adult cannot have his or her hands on the weight stack unless a team member is touching it as well.*

- 16. Team members must wear safety goggles, eyeglasses with plastic lenses, or other protective eyewear (approved by the judges) if they are within the Safety Area with their head below the level of the Crusher Board while the structure is supporting weight. This rule applies to everyone in the Safety Area (see E10).
- 17. A weight must be held on the stack for at least 3 seconds to count in the total weight held. There is no restriction on how rapidly team members place the weights and release the marbles, as long as it is in the proper order (weight, marble, weight, marble, etc.).
- 18. Team members may remove weights from the weight stack during testing; however, only the weights on the stack when weight placement ends are eligible for score.
- 19. It is the team’s responsibility to add the extension pipe to the safety pipe, if needed.
- 20. The team may test the structure at any time during the 8-minute competition time.
- 21. **A reminder about outside assistance:** Team members are responsible for building an original structure. No one beyond the team is allowed to provide ideas, tips, and information on how to build and/or improve a structure. This includes photographing other teams’ solutions for reference. Also, team members are not allowed to discuss with others how they solved this problem until after World Finals. Sharing ideas with other participants or in a public forum is considered outside assistance. Anyone doing this puts their team and the team of anyone who receives the information in position for a penalty. Failure to report such an occurrence could bring a significant penalty, or lead to disqualification or suspension (see the *2014-2015 Odyssey of the Mind Program Guide*).
- 22. Judgments dealing with measurements, weight, wood, the “open area” (see Figure A), and artificial strengthening will take place at the Weigh-In Site. Judges not associated with weigh-in may bring certain matters to the attention of the Weigh-In Judges. Penalties may be given before and/or after a team has competed.

## C. Site, Setup and Competition

1. If possible, the Tester will be on a solid, level floor. The Tester will be positioned in the center of the Safety Area, a 60" x 60" taped square, which will serve as a guide to keep team members aware of their proximity to the Tester and as a reminder of where they must wear safety glasses. The team is not allowed to move the Tester.
2. At least 45 minutes before its scheduled competition time, the team must report to the Weigh-In Site with its structure to have it checked for specifications.
3. If the structure does not meet specifications, Weigh-In Judges will try to give the team an opportunity to bring them into specification or submit a different structure before the team's competition time. In most cases, corrections should be completed no less than 20 minutes before competition time. There is no penalty if the structure is brought into specification before completing the weigh-in process.
4. Once the structure is weighed and measured and the marbles checked for size, a judge will place them into a bag and keep it at the Weigh-In Site until the team picks it up for competition. The judges at Weigh-In will supply the bag. The team must return to pick up its structure and marbles no earlier than 25 minutes before its scheduled competition time.
5. The judge will attach a Weigh-In Checklist to the bag containing the structure. The team cannot remove the Weigh-In Checklist until directed to do so by the Staging Area Judge. If the Weigh-In Checklist has been removed, the bag tampered with, or the structure or marbles removed, the team may have to repeat the weigh-in process. Depending on the situation, the team could receive a Spirit of the Problem penalty.
6. Team members must report to the competition site with everything they will use in their solution at least 20 minutes before they are scheduled to compete.
7. The team may place the structure onto the tester any time after the Timekeeper says "Team Begin."
8. Once on the Tester, the team may adjust it, including removing it from and replacing it on the Tester. Team members may continue touching the structure while placing the Crusher Board onto it. No one can touch the structure or reach under the crusher board once the team begins to place weights onto the Crusher Board. If team members wish to adjust the structure they must remove all weights except the Crusher Board. Team members may then touch the structure before resuming weight placement.
9. The weight-placement portion of the problem solution will end when:
  - a. the Crusher Board or any part of the structure touches any corner post.
  - b. any part of the structure touches anything other than the surface of the Tester base and the bottom of the Crusher Board in such a way that judges determine that it is helping to support the weight stack.
  - c. a weight rests against the safety pipe and the judges determine that the pipe is helping to support the weight stack. If time remains, the team will be given an opportunity to adjust that weight and continue weight placement.
  - d. a weight extends beyond the height of the full length of the safety pipe, including the extension pipe.
  - e. the 8-minute time limit ends. The team must stop all activity when the judge calls "time" or the team gives a signal that it has finished and its structure is broken.
  - f. a piece of the structure is not removed as required in B10 & 11.
10. Should the team finish its presentation before the structure breaks, and the signal to end is given in the skit, the team will be allowed to continue placing weights until any one of the criteria from C9 occurs.
11. Teams should bring cleaning utensils to clean up any mess. Should a team take an unreasonable amount of time to clean the site, or leave a mess; the judges will assess an Unsportsmanlike Conduct penalty. Others not on the team's roster may help the team clear the site and remove the team's props. The competition area must be left clean and dry for the next competing team.

## D. Scoring

1. Weight held (In each division, the team with the highest weight-held score will receive 150 points. All other structures will receive a corresponding score based on the percentage of weight held) ..... 1 to 150 points
2. Creativity of how the team-created device and the structure are designed to release marbles one at a time ..... 1 to 15 points
3. Number of bonus points for marbles released ..... 0, 3, 6, 9, 12, or 15 points
  - a. no marbles released ..... 0 points
  - b. 1 marble ..... 3 points
  - c. 2 marbles ..... 6 points
  - d. 3 marbles ..... 9 points
  - e. 4 marbles ..... 12 points
  - f. 5 marbles ..... 15 points
4. Creativity of how weight placement, and the theme “losing your marbles” is integrated into the performance ..... 1 to 20 points

*Maximum possible: 200 points*

## E. Penalties (Deduct penalty points from the percentaged score, not from total weight held.)

1. “Spirit of the Problem” violation (each offense) ..... -1 to -100 points
2. Unsportsmanlike conduct (each offense) ..... -1 to -100 points
3. Incorrect or missing membership sign ..... -1 to -15 points
4. Outside assistance (each offense) ..... -1 to -100 points
5. Having someone other than team members cut pieces of wood, or glue joints ..... “weight held” score of zero
6. Over cost limit ..... -1 to -100 points
7. Not incorporating 5 marbles into the structure ..... -10 points per missing marble
8. Illegally removed marble, i.e., removing a marble by hand or multiple marbles being released at once ..... zero score for that marble in D3
9. Artificially strengthened structure ..... -5 points to “weight-held” score of zero
10. Structure does not meet specifications and is not corrected before completing weigh-in\*:
  - a. **Overweight Structure** (Weight will be determined by the official gram scale for each competition.): Any structure weighing more than 18 grams will receive -5 points for every .1 gram over weight up to 1.50 or more grams over (zero score for weight held). The penalty must not exceed the calculated “weight- held” score.
  - b. **Oversized Wood:** any piece exceeds 1/8”x1/8” (.135” x .135”) at its cross section (not assessed if it is an irregularity of that piece and the rest is within limitations) ..... “weight-held” score of zero
  - c. **Undersized Structure:**
    - (1) \*Less than 8” but more than 7-7/8” high ..... -100 points
    - (2) 7-7/8” or less ..... “weight-held” score of zero
11. “Open area” does not accept the 2” diameter column through its entire height ..... -100 points

12. If any team member is not wearing safety glasses while inside the Safety Area with their head below the Crusher Board, the team must stop weight placement until that team member puts on safety glasses. Time will continue.
13. If an adult selects a weight or places it without help from a team member, that weight does not count toward weight held score. The weight may be removed and placed properly for score. An official will warn the team and the adult. If this continues after two warnings, a 10-point Outside Assistance penalty will be assessed for each future occurrence, and the improperly placed weight will not count unless it is removed and placed properly.

*\* These penalties will be substituted with a weight-held score of zero if, in the aggregate, that is less of a penalty.*

**F. Style** (Elaboration of the problem solution; use the Style Form from the Odyssey of the Mind Program Guide.)

1. Visual appearance of the team-created device ..... 1 to 10 points
2. Creative integration of the membership sign in the performance ..... 1 to 10 points
3. (Free choice of team) ..... 1 to 10 points
4. (Free choice of team) ..... 1 to 10 points
5. Overall effect of the four Style elements in the performance..... 1 to 10 points

*Maximum possible: 50 points*

**G. Tournament Director Will Provide\***

*At the weigh-in site:*

- a. a gram scale accurate to 1/10th of a gram.
- b. a micrometer or other precision method of checking wood thickness.
- c. a 2-inch diameter column-measuring device.
- d. an accurate ruler or device to measure the structure's size requirements.
- e. a marble-measuring device with an internal 5/8" diameter and another with an internal 11/16" diameter.
- f. a bag to hold the team's structure and marbles.
- g. tape to attach the Weigh-In Checklist to the bag.

*At each competition site:*

- a. a three-prong electrical outlet.
- b. a Tester and a 60" x 60" taped Safety Area.
- c. a 12-inch extension to the safety pipe.
- d. three pairs of safety glasses: one to be used by a judge and two that are available to the team.
- e. a judging team and all materials necessary to judge this problem.
- f. a minimum of 400 lbs. of weights in assorted sizes, generally from 5 lbs. to 45 lbs., each with a hole 2" in diameter. When registering for a tournament, teams needing more weight should notify the Tournament Director.

**\*NOTE:** *Contact your Tournament Director for information regarding specific competition sites such as actual dimensions, amount and size of weights, weight of the Crusher Board, registration procedures, floor surface, etc. Do not submit a clarification request for this information.*

**H. The Team Must Provide**

1. Four copies of its Style Form, one Cost Form, one Outside Assistance Form, and all of its team clarifications.
2. Safety glasses or other eye protection. However, the team may use up to two pairs of goggles provided by the tournament director.
3. Any necessary extension cords or adapters.
4. Cleanup materials as needed.

## I. Metric Equivalency Chart

### *Lengths:*

1 inch = 2.54 cm                      1 foot = 30.48 cm  
1 cm = .39 inches                      1 meter = 3.28 feet

### *Weights:*

1 ounce = 28.35 grams              1 gram = .035 ounces  
1 pound = .45 kilograms              1 kilogram = 2.2 pounds

## P R E C A U T I O N S

- Use eye protection, e.g., a face shield, safety glasses, goggles, etc., when looking closely at a structure holding weight. Collapsing structures may project pieces of wood several feet.
- Keep your fingers on the sides of the weights when placing them onto the Crusher Board or onto other weights.
- Remain aware of the structure, the testing device, and the weight stack at all times to avoid injury in case of collapse.
- Do not stand too close to the structure, Tester, and weight stack unless necessary, and avoid bumping them accidentally.
- Use a safety pipe through the center hole of the weights to help prevent them from falling.
- Place a piece of plywood/hardboard or a tumbling mat under weights waiting to be placed onto the weight stack to help prevent damage to the floor.
- Super glues are extremely dangerous to use and some glues have dangerous fumes. Read and follow all precautions and directions on the manufacturer's labels. Non-toxic model airplane wood glues are recommended. If toxic glue is used, proper precautions, such as adequate ventilation and parental supervision, are advised.

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Problem by Dr. C. Samuel Micklus and Samuel W. Micklus.

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