



Odyssey of the Mind

...a creative approach to education.

NATIONAL SCIENCE & TECHNOLOGY WEEK

Sooner than we think, we'll be counting on the students sitting in our nation's classrooms to be the true discoverers, inventors, healers and policy-makers of tomorrow. Will they be ready?

They can be if they are provided a rich environment, both in and outside of school. Planting the seeds of curiosity and exploration in the minds of students is one of the goals of National Science & Technology Week '89 — April 23-29, 1989 — coordinated by the National Science Foundation. The Odyssey of the Mind Program captures this spirit by supplying fascinating activities adaptable for students in kindergarten through college. The activities are also appropriate for use in the classroom, at home or in extracurricular settings. So whether you're a teacher, a parent or an interested member of the community, we urge you to celebrate NSTW by promoting these activities and helping us grow the scientists of tomorrow. For more information on NSTW, write the National Science Foundation, Washington, D.C. 20550.



APRIL 23-29
1989



The Odyssey of the Mind Program

The Odyssey of the Mind Program promotes divergent thinking in students from kindergarten through college. It offers students a unique opportunity to participate in challenging and motivating activities both inside and outside their regular classroom curriculum. Students learn to work with others as a team developing self-confidence by creating solutions, evaluating their ideas and making final decisions. They develop their creative skills through problem solving and independent thinking. Hence, the Odyssey of the Mind Program makes learning fun.

To participate in the Odyssey of the Mind Program, the school must be a member of OM Association. Members come from throughout the United States, Canada, Mexico, China and U.S. Department of Defense Schools located in several different countries.

In addition to the problems and rules for competition, OM members receive curriculum materials containing creative problem-solving activities at the elementary and secondary levels for science, mathematics, technology education, social studies and language arts. These materials are made possible by IBM, the sole corporate sponsor of OM and its student competitions.

Odyssey of the Mind teams consist of five to seven members. An OM Association member may have several teams in the same problem and run intramural competition to determine the best team to enter in sanctioned competition. Each team entering sanctioned competition must have an adult, a teacher or a parent designated as its coach.

Competition is by division. The divisions are as follows:

- Division I, kindergarten through fifth grade;
- Division II, grades six through eight;
- Division III, grades nine through twelve;
- Division IV, college and university students.

Competing teams are judged in three areas: the **long-term problem** where teams prepare solutions and bring them to competition; **style** or the enhancement of the long-term solution; and the **spontaneous problem** given to the team on the day of competition. The long-term solution is worth a maximum of 200 points, style is worth a maximum of 50 points and spontaneous is worth a maximum of 100 points. The total of these three scores determines a team's rank in competition.

Teams in most locations compete on a regional and/or state level. Teams advancing from competition become eligible to attend the annual World Finals.

For more information, write OM Association, Inc., P.O. Box 27, Glassboro, NJ 08028.

Corporate Sponsor



Science and Technology Activity: **ALTERNATIVE ENERGY**

A. The Problem

Your problem is to build, or adapt, a vehicle that will compete for speed and accuracy against other vehicles. The only energy input allowed to power your vehicle is the falling of a brick, stones or sand. Each vehicle will race and attempt to break a balloon target placed approximately 20 feet beyond the starting line.

B. Limitations

1. The vehicle must bear the designer's name, age and address.
2. The brick, stones or sand may not exceed 5 pounds.
3. The vehicle must carry the brick, stones or sand the full distance that it travels.
4. The vehicle, including the brick, stones or sand, may not exceed 30" in height or 10" in width. It may be any length.
5. Nothing held by a participant or fixture may be attached to the vehicle in order to help guide it.
6. If the officials feel that certain vehicles may cause damage to the floor, those vehicles will not be allowed to compete.
7. Any target balloon may be broken by any vehicle.
8. The vehicle must touch a balloon in order to break it. A vehicle may not shoot projectiles in order to break balloons.

C. The Competition

The competition will be in two parts: Part I, the qualifying rounds, will be to select the finalists. Part II will have the finalists compete to determine champions. (Each contestant is a winner.)

Part I:

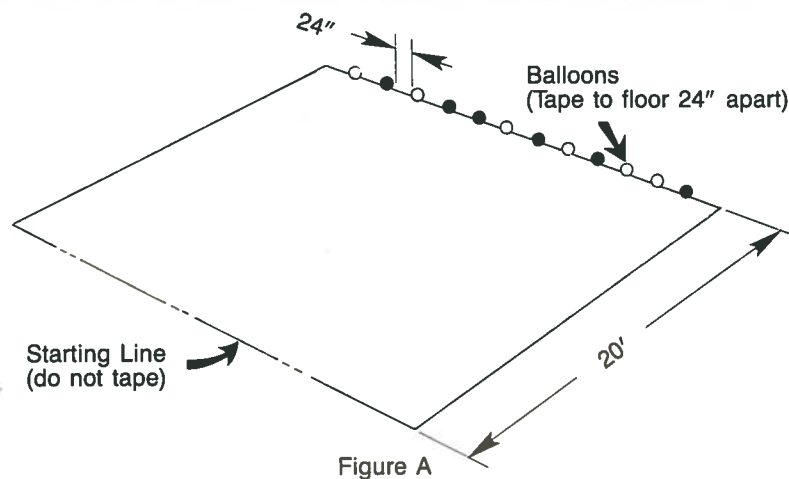
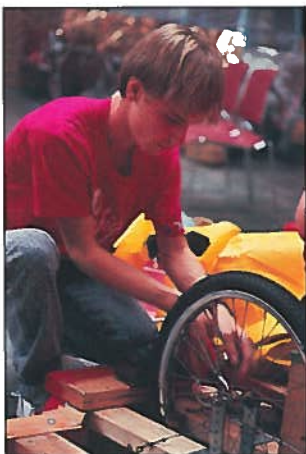
1. Contestants and their vehicles will take their positions behind the starting line on the floor. The starting line will be approximately 20 feet away from the finish line (see Figure A).
2. The **entire** vehicle must be behind the starting line.
3. The contestants may hold their vehicles and release the brick, stones or sand to begin the vehicle's journey; however, they may not push the vehicle forward.
4. In case of accidental crashes . . . SORRY!
5. The first vehicle to break a balloon will be selected to compete in the final round.
6. Replace any broken balloons before each round.
7. The site should be a wood, tile or another type of hard surface.

Part II:

1. The finalists will repeat the race against each other. In case of a tie, runoffs will be held until a champion is determined.
2. The judges' decision is final.

NOTE: An alternative competition may be held for total distance traveled. In this case, all of the vehicle's specifications are to remain the same. The following competition revisions should be made:

1. Establish a competition site approximately 8 feet wide and 60 feet long. (This length may be adjusted.)
2. Run one vehicle at a time.
3. If the vehicle goes out of bounds, the point where it crosses the boundary line will be the official distance traveled.
4. Eliminate balloon targets.



Science and Technology Activity: PASTA POWER

A. The Problem *(suggested for teams of three people)*

Your problem is to design and construct a structure made of spaghetti, a can and mailing labels that will support weight. Nails will be placed into the can until the structure breaks. The team whose structure supports the most nails will be declared the "PASTA POWER CHAMPIONS."

B. Limitations

1. Provide each team with 25 pieces of spaghetti (approximately 10" long), 6 pressure-sensitive mailing labels (1" x 2½"), 2 rubber bands and a 1 lb. coffee can to make its structure. The team will also be given scissors and a ruler to use. The scissors and ruler may not be a part of the structure.
2. The top of the can must be a minimum of 12" above the testing surface when weight placement begins. If, at any time, the distance is less than 12", the structure will be considered broken.
3. Once you have placed the first nail into the can, you may not touch the structure or the can again.
4. You must place the nails in the can one at a time without removing them. Nails must be supported for 3 seconds to count for scoring.
5. Your score will be equivalent to the number of nails supported.

C. Recommendations

1. If a team has nearly filled its can with nails and the structure appears to be able to hold more without breaking, the team may place a larger can directly on top of the original one and continue.
2. One pound of regular spaghetti (approximately 10" pieces) should be enough material for approximately 17 or 18 structures.
3. At the test site, have 2 three-pound coffee cans, 10 pounds of 3½", 16-penny nails, a ruler and a trash can.

Science and Technology Activity: SPAN STRUCTURE

A. The Problem

Your problem is to design and construct a structure made of toothpicks, straws, clay and mailing labels. Your structure must span the distance between two blocks, each at the edge of a table, while supporting a load basket. You will place weights into the load basket until your structure breaks.

B. Limitations

1. You will be given 25 toothpicks, 15 straws, 4 pressure-sensitive mailing labels and a 1" cube of clay to make a structure including the joints. These materials may be cut or altered. You will also be given scissors to cut with, but the scissors may not be used as part of your structure.
2. Place your structure on the blocks that are resting on the tables. Then remove it and attach the load basket by passing the structure through the loop in the basket's handle. Replace the structure on the blocks.
3. Nails will be used as weights. Once the first nail is placed in the load basket, the structure cannot be touched. You will continue to place nails into the load basket until the structure breaks. The structure must hold the weight for 3 seconds to count. Only one nail may be placed into the load basket at a time.
4. You will be scored as follows:
 - a. The structure is placed on the blocks and supports itself. 15 points
 - b. The structure supports the load basket. 10 points
 - c. Each nail placed into the load basket and supported by the structure. . . 1 point

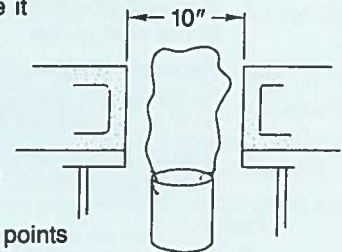


Figure A

C. Recommendations

1. The edge of the blocks should be 10" apart and flush with the table edges (see Figure A).
2. At the test site provide 2 cement or cinder blocks, 2 tables, 10 pounds of nails (approximately 2" long), a ruler and a load basket (e.g., a small, lightweight bucket or basket; or a can with a string attached on opposite sides).
3. Each team should receive the same quantity, type and quality of materials, e.g., flat or round toothpicks, same size labels, etc.

ADDITIONAL RECOMMENDATIONS FOR THE STRUCTURE PROBLEMS

1. Arrange a supply table to provide the individuals and teams with the materials required to solve the problem.
2. Have each team take its materials to a designated work place such as tables or an open floor area.
3. Have one official test site. As a team is about to test its structure, an official should check all specified measurements.
4. If this is a large group activity, arrange chairs around the official test site for spectators. This also helps crowd control.

Science and Technology Activity: IDENTIFIED FLYING OBJECTS

A. The Problem

Your problem is to build an aircraft that will fly and compete for speed and accuracy against your opponents' aircraft. Your aircraft will race to break a balloon during its flight.

B. The Limitations

1. The aircraft must bear its designer's name, age and address.
2. The aircraft may be made of any materials.
3. The aircraft must be powered by one or more of the following power sources: one rubber band (any size); one 9-volt or 1½ volt D, C or AA battery; and/or throwing it.
4. Your aircraft must fly to some degree. You may not toss a piece of wood or crumpled paper that would merely move as a baseball. Each aircraft has to glide or lift to remain eligible.
5. The aircraft may not be remotely controlled. Nothing may be attached to the aircraft and held to guide it.
6. The aircraft may not exceed 30" in width. It may be any length or height.
7. Each aircraft may have no more than three straight pins attached to break the balloons.
8. Balloons will be placed approximately 30 feet beyond the starting line (see Figure A).
9. Any balloon may be broken by any aircraft.
10. If the officials feel that any damage may occur to the facility, your aircraft will not be allowed to compete.
11. Contestants and officials must wear glasses, safety glasses or safety goggles.

C. The Competition

The competition will be in two parts: Part I, the qualifying rounds, will be to select the finalists. Part II will have the finalists compete to determine champions. (Each contestant is a winner.)

Part I:

1. Contestants and their aircraft will take their positions behind the starting line on the floor, approximately 30 feet away from the balloons.
2. The aircraft, including all of its parts, must be launched from behind the starting line.
3. The designers may hold their aircraft and release or throw them to begin the journey.
4. In case of accidental crashes . . . SORRY!
5. The first aircraft to break a balloon will be selected to compete in the final round. Officials should replace any broken balloons before each new round.
6. If no aircraft breaks a balloon, the opponents will try a second time. Then, if no balloons are broken, proceed to the next group.
7. For safety reasons, this activity should be done in a large open area such as a gymnasium, cafeteria or outdoors. All spectators must be a safe distance (at least 25 feet) from the competition site. Be sure that no one is standing near or behind the targets.
8. Should a large facility not be available for this problem, replace the pins with a soft material such as felt with marker color added. In addition, replace the balloons with paper targets that can be marked by the colored felt.

Part II:

1. The finalists will fly against each other. In case of a tie, runoffs will be held until a champion is determined.
2. The judges' decisions are final.

