



## THE PAPER TOWER

Number of Members Per Team Two

Number of Towers Per Team One

### SKILLS AND ENGINEERING CONCEPTS DEVELOPED:

Involves designing and constructing a free standing tower from a single sheet of 8 ½" by 11" paper.

Involves creative design, analysis of structural concepts, construction skills (with paper), and concepts of stability.

### INTRODUCTION

If you look up the definition of a tower, you will find the following: "An exceptionally tall building or part of a building or an exceptionally tall structure used for some functional purpose." In the past, towers were usually used to house bells (bell towers), for observation (watch towers), or for signaling (light houses). Perhaps the earliest record of a tower comes from the Bible, where the story of the Tower of Babel is told. Other notable towers include the Tower of Pisa and the Eiffel Tower, two completely different types of towers. Today there are many more types of towers that are used for a wide variety of functions. A few examples are transmission line towers, radar towers, radio and TV broadcasting antenna towers, and towers for suspension bridges.

### OBJECTIVE

The objective of this project is for students to design and build the tallest free standing tower using only one sheet of 8 ½" by 11" paper and scotch tape. The tower may **NOT** be taped to the floor.

### PROJECT DESCRIPTION

The challenge of this project is to design the tower to make optimum use of the single sheet of paper in order to achieve the greatest tower height. The design of the base will also be challenging, as the tower must be free standing.

### CONSTRUCTION

Each team should be given **one** 8 ½" by 11" sheet of paper, a pair of scissors, and 3 feet of scotch tape. The tape is to be used only to fasten the pieces of paper together, and may not be used to provide extra height. Each team will have 15 minutes to plan and design their tower, and 30 minutes to execute their design.

### PROJECT CONSTRAINTS

The towers constructed must:

- Be constructed from a single sheet of 8 ½" x 11" paper
- Be free standing for at least 5 seconds (cannot be taped to the floor).

### SUPPLIES REQUIRED

One sheet per team

Scotch tape (three feet per team maximum)

Ruler

Scissors (one pair for each team).

### COMPETITION

- Each tower will be required to free stand for a period of at least 5 seconds.
- The height of each tower that meets the first requirement will be measured, and the tallest tower will win.
- Each team will be given three chances to have their tower free stand for 5 seconds.