Bump Test

Materials:

- 36" x 48" cardboard tri-fold (for posters)
- 1.5" tall pieces of wood
- An empty area on the floor
- Tape (masking tape is best)

Optional
- exacto knife or box cutter
- straight edge

Explanation:

This PDF explains the procedure to build a bump test for evaluating our prototypes.

This bump represents the most challenging obstacle expected at the contest. The bump has a height of 1.5" is made from somewhat slippery material. If a prototype can handle this bump, it should do fine in the desert.

The bump takes about 30 minutes to make.
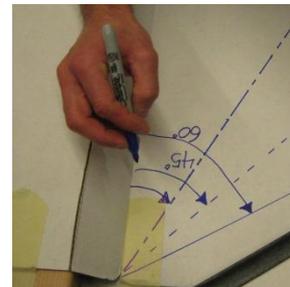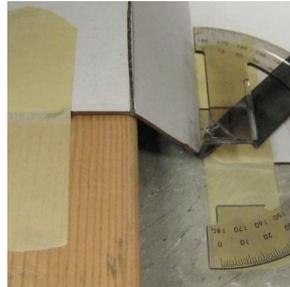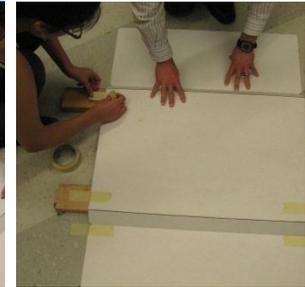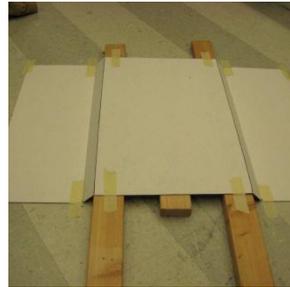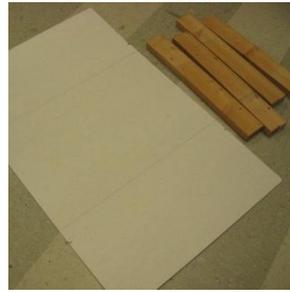
Preparing the Cardboard:

1. Mark a straight line 2 inches from the already-existing trifold bend (toward the center)
     Then make the same line on the opposite side

2. Score the marked lines
     ("score" = cut enough to weaken the cardboard, but not actually go through it)

3. Bend the cardboard at the scored lines

Bump Reinforcement:

1. Put pieces of wood under the cardboard to form slopes of ~45 degrees

2. Tape the cardboard to the wood and to the floor

3. Reinforce the bump with extra pieces of wood
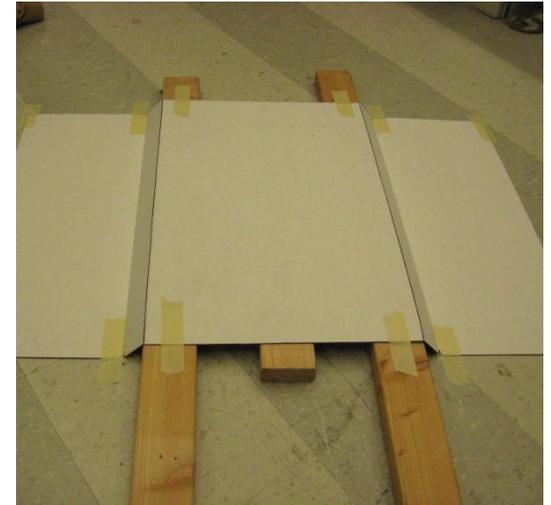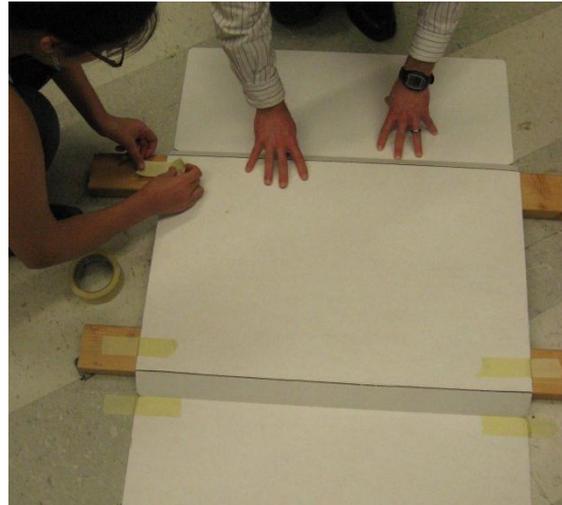
Slant Angle Bump Test

1. Measure out angles 30, 45, 60 at the corner of the bump

2. Tape trifold to wooden planks and trifold to the floor

3. Reinforce bump with extra pieces of wood
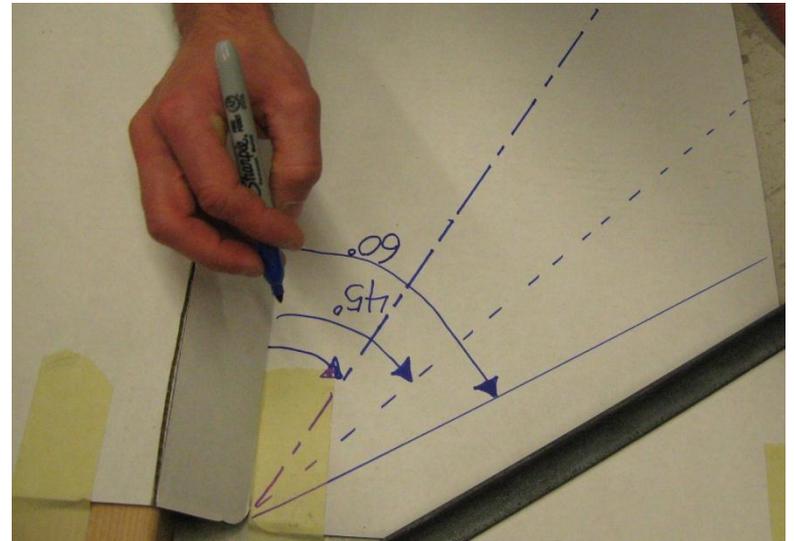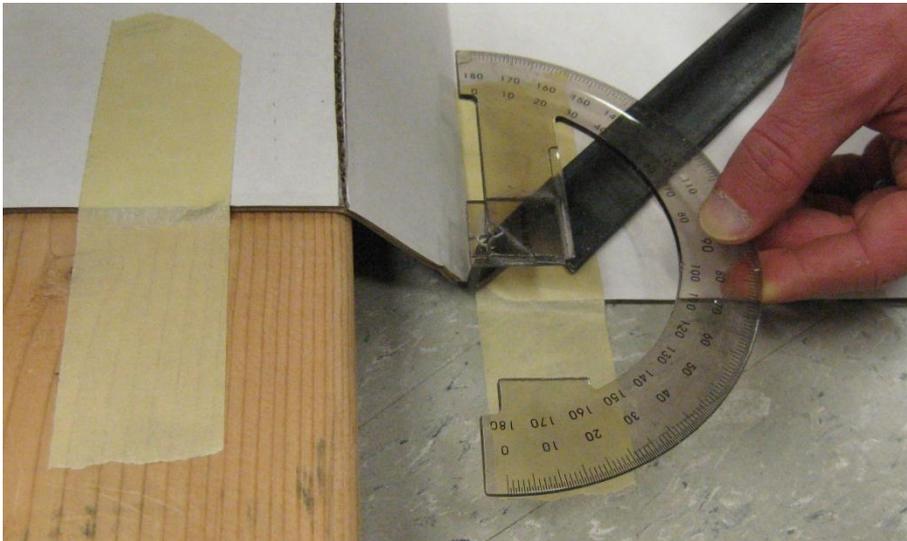
Bump Tests:

1. **Perpendicular Tests**: Have the robot move straight forward into the bump

    - Position the robot 0, 15, and 30 cm away from the bump before turning on motors
    - Video record all trials

2. **Angled Tests**: Have the robot move at an angle to the bump (for now, assume 45 degrees)

    - Position the robot 0, 15, and 30 cm away from the robot to the bump before turning on motors
    - Video record all trials