

Dragon Racer



Problem: How do different surfaces affect the movement of the dragon racer?

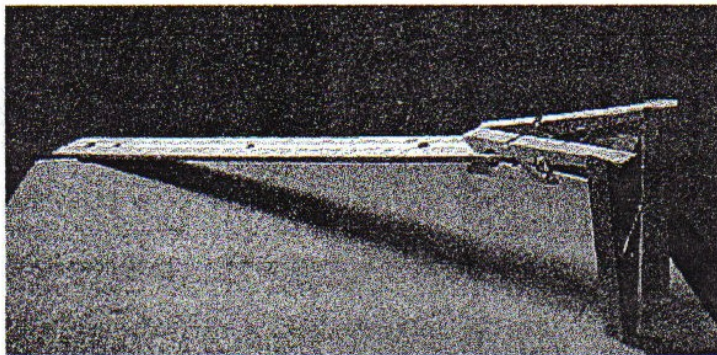
Materials: scissors, marble, centimeter tape, ruler or paper towel tube, dragon racer copied on tag board, crayons, 4 spring clothespins
surfaces for exploration: aluminum foil, sandpaper, wax paper, copy paper
real world surfaces for testing: carpet, tile, wood, cement

Procedure:

Note: This experiment can be done in two parts.

Part 1:

1. Color and cut out the dragon racer.
2. Create the ramp with the clothespins and ruler or tube. See picture:



3. Allow the students to work in groups to explore this concept using the exploration surfaces.
4. Have the students put one of the different surfaces at the bottom of the ramp, set the dragon racer on this surface, and roll the marble down the ramp and into the dragon racer to see how far the dragon racer will travel.
5. After giving ample time for exploration, pull the students together and discuss their findings.

Part 2:

6. Using the knowledge gained from their explorations, have the students predict how far the dragon racer will move on the real world surfaces.
7. Now have the students return to their groups and begin their testing by placing their ramp on one of these surfaces.
8. Place the dragon racer at the bottom of the ramp and roll the marble down the ramp and into the dragon racer.
9. Measure in centimeters the distance the dragon racer moves on one of these surfaces. Repeat this twice more on the same surface and record the distances measured on the chart.
10. Repeat this experiment with the other surfaces. Record all distances traveled on the chart.

Name _____ Date _____

Dragon



Racer Trials

| Surface | Prediction of distance | Trial 1 distance | Trial 2 distance | Trial 3 distance | Total distance for 3 trials |
|---------------|------------------------|------------------|------------------|------------------|-----------------------------|
| Aluminum foil | | | | | |
| Wax paper | | | | | |
| Copy paper | | | | | |
| Sandpaper | | | | | |
| | | | | | |

On which surface did the dragon racer travel the farthest?

On which surface did the dragon racer travel the shortest distance?

Why do you think there was a difference in the distances traveled?

Name _____ Date _____

Dragon Racer

| Surface | Prediction of distance | Trial 1 distance | Trial 2 distance | Trial 3 distance | Total distance for 3 trials |
|---------|------------------------|------------------|------------------|------------------|-----------------------------|
| Tile | | | | | |
| Carpet | | | | | |
| Wood | | | | | |
| Cement | | | | | |
| | | | | | |

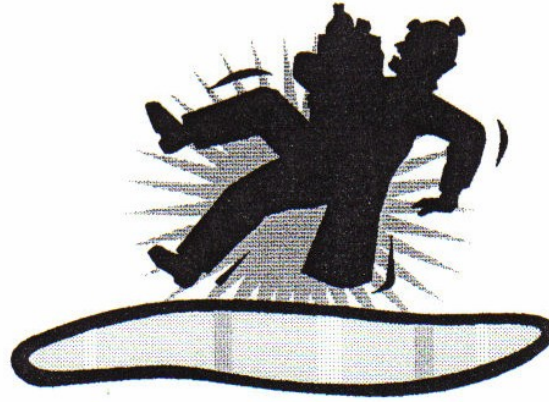
On which surface did the dragon racer travel the farthest?

On which surface did the dragon racer travel the shortest distance?

Why do you think there was a difference in the distances traveled?

Define **friction**:

Apply what you have learned:

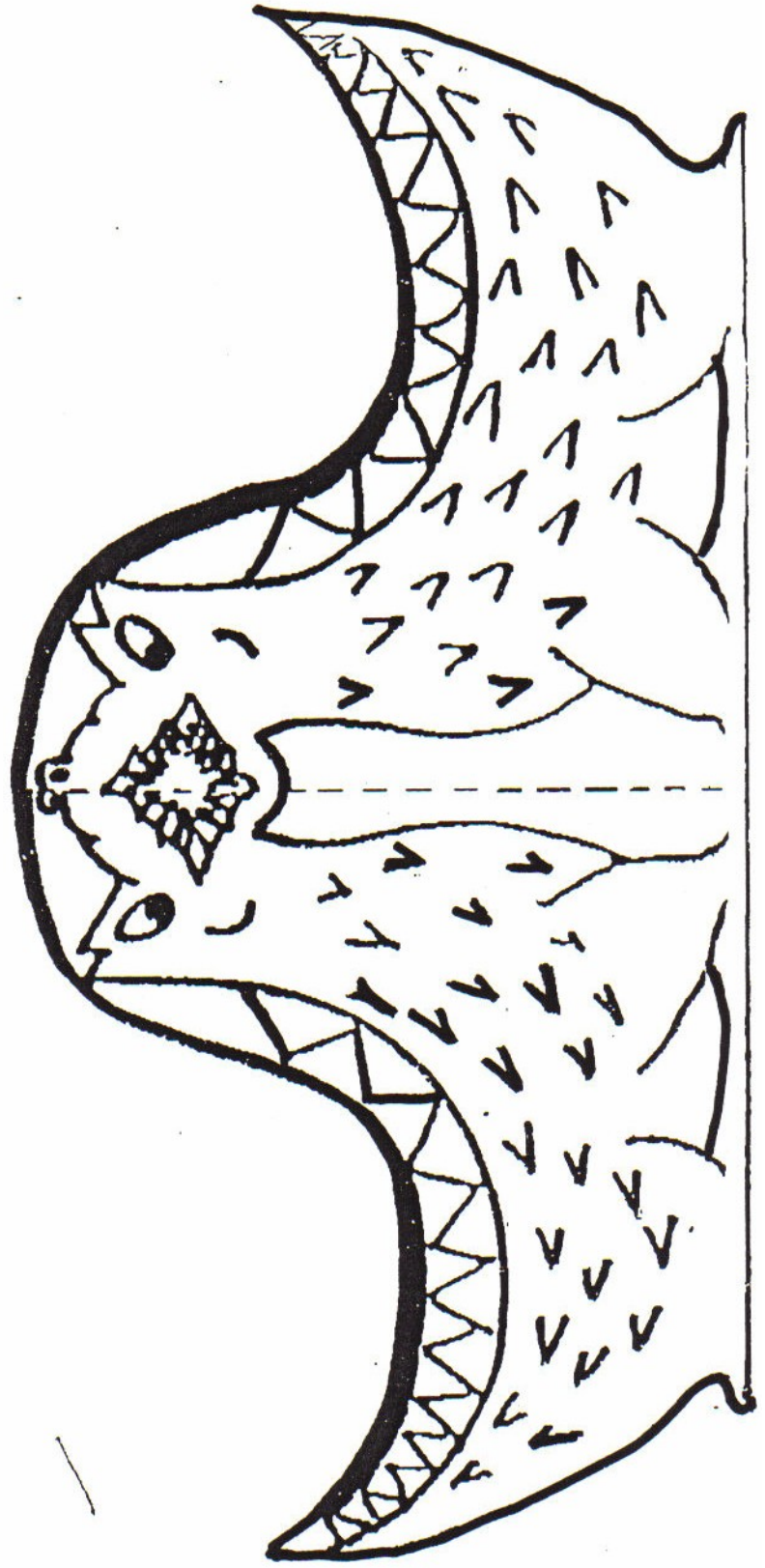


If you were walking home on a cold winter day and you stepped on an icy patch on the sidewalk, what could happen to you? Why?



Why don't you go rollerblading on grass?

What surface would you choose to rollerblade on?



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