Makeshift Mini-hovercraft experiments

Experiment

This experiment was conducted to see how far each hovercraft (different materials) went. It was also conducted to see how long each hovercraft could stay in the air for. We tested every craft twice.

Materials

The materials used were: aluminium foil, magazine paper, A4 sheet paper and cardboard.

Set-Up

To make sure everything was equal and right, we made all the hovercrafts the same size [81cm^2 squares (in the sheets that were used)]. Once the hovercrafts were made, we got a launching pad (a cardboard delivery box) and a bicycle pump to push the hovercrafts. We got the camera to record the time it took for the hovercraft to fall to the ground.

To make a uniformed push, we used a certain manoeuvre on the bicycle pump. To make the launch the same, we drew a launching line and a pumping line. To make the measurement correct, we used a tape measure. We stuck the zero line under the launch pad so it wouldn't move and measured it from there with the rest of the tape measure.

The hovercraft usually didn't go right on top of the tape measure, so we used a pencil to align the hovercraft's landing (picture). We always measured from the hovercraft's nose so it was equal and fair. It was tested in centimetres and seconds.

Results

Table 1 (Hovercraft push distance)

Material	Experiment 1 Push distance (cm)	Experiment 2 Push distance (cm)	Average Push distance (cm)
Paper	38	30.1	34
Magazine	23.5	16.2	19.9
Aluminium	29	17.7	23.4
Cardboard	21.5	33.2	27.4

Table 2 (Hovercraft push distance)

Material	Experiment 1 Flight time (sec)	Experiment 2 Flight time (sec)
Paper	<1	1.85
Magazine	<1	1
Aluminium	<1	1
Cardboard	<1	1.9

Discussion

The reason for the paper's average push value to be high, was because it was light, perfectly made and it trapped the air within the craft. The reason for the magazine paper to have a low push average result, was because it was not so finely made and let go of all the air easily. Another reason to the bad results was that the magazine paper was heavy. Although the cardboard was the heaviest of all, it was the second best because the craft trapped air within and the pad to roof distance was very big. The aluminium foil craft, was the lightest but was not the best because it scrunched up too much to make the craft put on more weight.

The cardboard's quick flight time, was due to the same abilities as before. The paper's flight time, was also due to the same reason as the cardboard. Aluminium is light but it was very scrunched up at the launching period. The magazine, was bad due to a similar reason as the other two (cardboard and paper). In our experiment, we couldn't specifically calculate the flight time.

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