EDIBLE CARS

Objective: To construct a car made completely of food that will travel down a 3ft. incline.

I. Materials Provided by K.E.E.N.
    A. Provide peanut butter and marshmallow crème for adhesives.
    B. Provide round foods for wheels. (cookies, crackers, Life Savers)
    C. Provide things like Twinkies & cucumbers for the body.
    D. Use large peppermint sticks or pretzels for the axles (anything long)
    E. Plastic knives for spreading adhesives.

II. Rules
    A. Students shall work in groups of 3-5.
    B. Each group shall select individual food items.
    C. They will have 30 minutes to construct the car.
        1. 5 minutes for planning.
        2. 5 minutes for drawing design & assigning tasks.
        3. 20 for actual building time.
    D. No other materials will be allowed.
    E. DO NOT EAT THE FOOD!
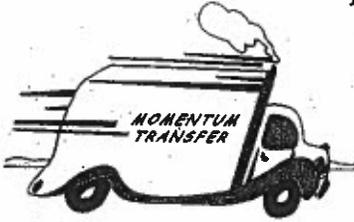
III. Helpful Hints
    A. Think before you construct.
    B. No additional items will be given
    C. Food may be torn, punctured or otherwise mutilated.
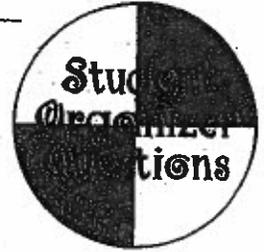
TEAMWORK

"Understanding Car Crashes It's Basics Physics"
Video Concept Organizer

Running Time:
22 minutes

Directions:
To help you remember the key physics concepts discussed while viewing the video, fill in the blanks or circle the correct answer.

Video Scenes & Key Concepts

Test Track Laws
Why did the dummy get left behind? It's called _____ , the property of matter that causes it to_____.

Isaac Newton's (circle one) 1st 2nd 3rd Law of Motion states: A body at rest remains at _____ unless acted upon by an external _____ , and a body in _____ continues to move at a constant _____ in a straight line unless it is acted upon by an external force.

Crashing Dummies
Now watch what happens when the car crashes into a barrier. The front end of the car is crushing and absorbing _____ which slows down the rest of the car.

In this case, it is the steering wheel and windshield that applies the _____ that overcomes the dummy's _____

Crash-Barrier Chalkboard
Newton explained the relationship between crash forces and inertia in his (circle one) 1st 2nd 3rd Law of Motion.
(Fill in the blanks to explain what each letter in the formula represents.)
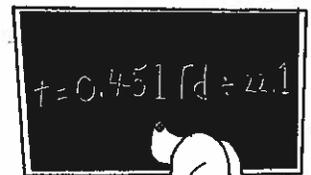
$$F = \text{_____} \longrightarrow F = ma \qquad m = \text{_____}$$
$$a = \text{_____}$$

$$F = \frac{m\Delta v}{t} \qquad \Delta v = \text{_____}$$
$$t = \text{_____}$$

$$Ft = \text{_____} \longrightarrow Ft = m\Delta v \qquad m\Delta v = \text{_____}$$

GROUP # _____

CAR WEIGHT = _____ OUNCES   CAR TIME = _____ SECONDS

$$\text{VELOCITY} = \frac{\text{DISTANCE}}{\text{TIME}} = \frac{3 \quad \text{FEET}}{\text{_____} \quad \text{SECONDS}} = \boxed{\frac{\text{FEET}}{\text{SECOND}}}$$

$$\text{MASS} = \text{CAR WEIGHT} \times 0.0625 \frac{\text{POUNDS}}{\text{OUNCE}} = \text{_____} \text{ OUNCES} \times 0.0625 \frac{\text{POUNDS}}{\text{OUNCE}} = \boxed{\text{POUNDS}}$$

$$\text{MOMENTUM} = \text{MASS} \times \text{VELOCITY} = \text{_____ POUNDS} \times \text{_____} \frac{\text{FEET}}{\text{SECONDS}} = \boxed{\frac{\text{POUNDS x FEET}}{\text{SECOND}}}$$

$$\text{VELOCITY} = \text{_____} \frac{\text{FEET}}{\text{SECOND}} \qquad \text{MOMENTUM} = \text{_____} \frac{\text{POUNDS x FEET}}{\text{SECOND}}$$