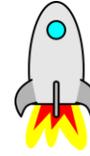


# Brain Twister



## Pre - Class Activity

**Introduction:** You will soon be participating in an engineering project at Driftwood Education Center. In this lesson, you will be working in teams to create a prototype for a device for NASA. Your design will be restricted by a budget. The following activity will allow you to practice collaboration as well as working within a budget.

**Directions:** Work together in groups of two to fill in the charts below, then answer the questions on the following page. Once all questions are complete, discuss your answers with the class.

### A Bottle of Soda

	cost	cost per item
vending machine		
brand name at convenience store		
brand name at grocery store		
brand name at discount store		
generic brand		
other:		
other:		
other:		

### A Pair of Jeans

	cost	cost per item
brand name designer		
lesser brand		
discount store		
thrift store		
yard sale		
other:		
other:		
other:		

1. We can look at advertisements and learn how they convince us to want an item.    True    False

2. A spending *need* is:

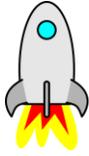
- a. something that looks good to me
- b. something that I need to exist
- c. something my friend has
- d. the first thing I see in the store

3. The best spending choice is:

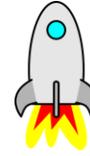
- a. always shop at brand-name stores
- b. buy the same thing my friends buy
- c. compare my choices before I buy
- d. always borrow from friends

4. Television commercials for products are always factual.    True    False

5. List 3 spending needs that you have. In a separate column, list 3 spending wants. How are they different?



# Brain Twister



## Post - Class Activity

**Introduction:** During the Brain Twister activity at Driftwood, your group designed a water transport landing device. In the following activity, you will learn more about the physics of the water landing activity.

**Directions:** Match the term with the correct definition using the following cards. Discuss how each force impacted the device you created.

After discussing the cards, brainstorm how you would redesign your landing device considering the discussion of the above terms. Remember, the goal of your water lander design is to maximize drag and minimize impact.

**IMPACT**

**GRAVITY**

**DRAG**

**POTENTIAL ENERGY**

**KINETIC ENERGY**

**The energy that is stored in an object due to its position relative to some zero position.**

**The force generated at the start of contact or collision - can be minimized if the duration of the collision is increased.**

**The force of attraction between all masses in the universe; especially the attraction of the earth's mass for bodies near its surface.**

**The force that is always opposite to the object's motion, and unlike friction between solid surfaces, this force increases as the object moves faster.**

**The energy of motion; an expression of the fact that a moving object can do work on anything it hits.**