

Do-It-Yourself Science

Running Time: 26 Minutes

Nifty questions in this episode:

- Where does all food come from?
- How many phases (states) does matter have?
- Does air have pressure?

Awesome answers:

- Plants! (Cows eat grass, etc.)
- Three: solid, liquid, gas.
- Yes! Gravity keeps air molecules together.

Experiments shown on the video:

CRUSHER

Objective: To demonstrate the effects of air pressure and gravity on a bottle.

- Fill a large bowl with ice cubes and cold tap water.
- Fill a 2-liter plastic bottle with hot tap water and put the bottle cap on tightly.
- Let stand for ten minutes.
- Remove bottle cap and empty hot water.
- Replace the bottle cap and submerge the bottle in the ice water.
- Observe the effect of internal and external air pressure.

EGG & I

Objective: To demonstrate the strength of shapes and structures.

- Place a 2-liter bottle cap on a flat surface with its open end facing up.
- Place the bottom of one egg on top of the bottle cap.
- Place another bottle cap on top of the same egg.
- Try balancing a book or other heavy object on top of the bottle cap.

More interesting stuff to do:

JOHNNY ROCKET


Objective: To demonstrate Newton's Law of Action and Reaction; unbalanced forces produce motion.

- Tie one end of a 6-foot length of string to the back of a chair.
- Cut a 6-inch piece from a straw and thread the other end of the string through the straw.
- Place the straw at one end of the string.
- Blow up a balloon (long and slender if possible) and twist the end to keep the air in the balloon.
- While holding the balloon, tape it to the bottom of the straw. Make sure the straw will still slide on the string.
- Let go of the twisted end of the balloon and observe Newton's Law of Motion.

ON THE MOVE

Objective: To demonstrate how potential energy is changed to kinetic energy.

- Tape one end of a ruler to the end of a desk.
- Cut three 12-inch pieces of strings and tape the ends of the strings to the free end of the ruler.
- Using small pieces of tape, tape a small ball to the end of each string hanging below the ruler. With the balls in place we have potential energy.
- Pull one ball back and release, allowing the ball to hit the next ball. This result is kinetic energy. This movement will continue until stopped by some other force, such as friction.

 closed-captioned



Disney Educational Productions
105 Terry Drive, Suite 120
Newtown, PA 18940-3425
1-800-295-5010



Funding provided
by The National
Science Foundation.