

Fireclap

A cold metal sphere can burn through paper



Materials

- Collision Spheres
(2-inch dia. steel balls)
- Paper

Additional Materials

- Cotton cloth?
- Other materials to “burn”
- Smaller Steel Balls

A Few Specifics

- Arbor Scientific’s
“Collision Spheres”

Introduction

When objects collide, some of their kinetic energy is transformed to thermal energy. In most collisions kinetic energy is used to do the work involved in crushing, bending, or crumpling an object. When two steel spheres collide, they don’t crumple or bend. So the energy is transformed to sound and thermal energy. At the point of collision, the thermal energy is great enough to ignite ordinary paper.

Assembly

No assembly required.

To Do and Notice

Hold a ball in each hand. Have an assistant hold a sheet of paper, allowing it to hang vertically. Clap the spheres together with the paper between them. Observe the hole and smell the burn.

Notice also that this cannot be done with the smaller balls. Try clapping the balls against other materials if they are available.

What’s Going On? Research!

See past “notes to the future.”

- MECHANICS
- HEAT