

Super Models

Intermolecular Forces Demonstration Kit

Ryler Enterprises, Inc. www.rylerenterprises.com



Recommended for ages 10-adult.

Kit Contents:

20 smooth foam balls	20 neodymium alloy magnets	10 wood pins
3 tubes acrylic paint	3 paint brushes	

Assembly instructions: (Tools needed: white glue, drill, 3/16 & 1/8 inch drill bits)

1. Paint the 2 inch smooth foam balls green, the 2.5 inch smooth foam balls orange, and the 3 inch smooth foam balls purple.
2. Allow the paint to dry. To achieve a smoother finish, apply a second coat of paint.
3. Drill one 3/16 inch hole about 1/2 inch deep in each 1 inch smooth foam ball. Set two of the 1 inch smooth foam balls aside.
4. Drill a 3/16" hole (about 1/4 inch deep) in each end of the four green (2 inch), six orange (2.5 inch), and four purple (3 inch) smooth foam models.
5. Place a small amount of glue in the holes of two of the 1 inch smooth foam balls and connect them with a wood pin. Repeat with two more 1 inch smooth foam balls, the green 2 inch

smooth foam balls, the orange 2.5 inch smooth foam balls, and the purple 3 inch smooth foam balls. These will represent fluorine, chlorine, and iodine molecules.

6. Place a small amount of glue in the hole of one 1 inch smooth foam ball and place a small amount of glue in the hole of one orange 2.5 inch smooth foam balls and connect them with a wood pin. Repeat with the other 1 inch and 2.5 inch smooth foam balls. These will represent polar hydrogen bromide molecules.
7. Drill a $\frac{3}{16}$ " hole (about $\frac{1}{4}$ inch deep) in each end of the orange 2.5 inch smooth foam bromine models. Place glue in each hole and insert a medium magnet into one hole. Place a medium magnet into the other hole making sure the polarity of the magnet is aligned with the magnet in the first hole. These will represent diatomic bromine molecules. Repeat this process with the purple balls to make models of iodine.
8. Drill a $\frac{3}{16}$ " hole (about $\frac{1}{4}$ inch deep) in the each orange ball end of the white/orange smooth foam hydrogen bromide models. Place glue in each hole and insert a medium magnet into each hole aligning the polarity with the other magnets.
9. Drill a $\frac{1}{8}$ " hole (about $\frac{1}{4}$ inch deep) in each end of the 1 inch white smooth foam fluorine models. Place glue in each hole and insert a small magnet into one hole. Place a small magnet into the other hole aligning the magnet polarity. Repeat with the the green 2 inch smooth foam chlorine models.



Teaching topics: Intermolecular forces, instantaneous dipoles, induced dipoles, permanent dipoles, polarizability. Download the presentation: "Intermolecular Forces" to help teach these concepts and more.