Things to Do With Dry Ice

Summary

Students will observe physical and chemical properties of a substance through demonstrations with dry ice.

Time Frame

1 class periods of 60 minutes each

Group Size

Individual

Materials

dry ice (can be purchased the morning of the lesson from most grocery stores)
styrofoam cooler
medium sized balloons
hammer or crushing tool
bromothymol blue
phenylthalein
dishwasher soap
metal spoon
candle
pitcher or large beaker
test tube,
styrofoam cup, optional

- student sheet (attached)

Background for Teachers

Explain to students that dry ice is frozen carbon dioxide and that it has the interesting physical property of a low boiling point (-78.5 C). It goes from its frozen state to vapor without passing through a liquid (sublimation) at room temperature.

Instructional Procedures

Gather the materials and place them on a demonstration table.
You may wish to do the demonstrations and have students watch without doing written work. If you'd rather, give students the student sheet and introduce them to the dry ice. Read the directions with them and tell them how to record the data.
Do all or some of these demonstrations. Students can record their findings as you go.
Crush dry ice and place inside a balloon. Tie off balloon and watch it expand.
Place dry ice in a Bromothymol Blue solution. The solution should turn from blue to yellow.
Place dry ice in a pitcher or beaker and let sublime. Light a candle in jar and let burn. Pour carbon dioxide gas into jar with candle and watch it go out.
Place dry ice in Phenylthalein solution that has been colored pink by adding a small amount of a base. Should bubble to clear.
Place a spoon over a small piece of the ice and press between the table down. It will squeak.
Freeze water in a test tube in between two pieces of dry ice. Use a Styrofoam cup to hold

the dry ice and test tube.

Allow students to play "dry ice" hockey by setting up goals on their table and shooting small chunks of ice through them.(by flicking it with their fingers) See if they can explain why the ice "floats" across the table (it is on a cushion of carbon dioxide) Do not give students pieces larger than a quarter, the game ends when the ice is gone.

Put dishwashing detergent into a beaker of water. Add dry ice and watch the bubbles. Let kids have a handful as they walk out the door.

Safety concern: Caution students not to hold the dry ice on their skin or put it in their mouths.

Bibliography

Lesson Design by Jordan School District Teachers and Staff.

Authors

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