

Heat and Change

Summary

Students will investigate the heat given off or taken in during a variety of chemical and physical changes.

Time Frame

1 class periods of 60 minutes each

Group Size

Pairs

Materials

Can vary according to what you have. Suggestions include:

- vinegar
- baking soda
- ice
- calcium metal
- salt
- sugar
- alka seltzer
- water
- beakers
- test tubes & racks
- thermometers or CBL's with temperature probes (CBLs are able to measure small energy changes more visibly for students)
- [student sheet](#)
(attached)

Background for Teachers

It is not necessary or recommended that students be expected to know the terms endothermic and exothermic. They do need to understand the concept that energy change can occur either by energy being given off or taken in during a chemical reactions. It is difficult for students to separate chemical and physical changes based on energy. Energy changes are often required for physical change to occur but are not actually created in the reaction. It is a fine point and one that the students will probably need some coaching to get.

Instructional Procedures

Read the instructions and discuss it with the students. Show them where the materials are found.

If students are unfamiliar with the thermometers or CBLs, instruct them on their use, however it is recommended that the teacher set up the CBLs prior to the students use. There will be less trouble-shooting during class time that way. Have the take several practice readings to make sure they can use the CBLs. The directions for the CBLs are as follows:

Allow time for students to investigate the energy changes in the substances.

Have students summarize their results on the board or an overhead by tallying the number of groups that thing the change gives off heat or takes in heat and whether the change is chemical or physical.

Bibliography

Lesson Design by Jordan School District Teachers and Staff.

Authors

[Utah LessonPlans](#)