

ICE, ICE, BABY!



BACKGROUND

Ice packs help to alleviate pain after an injury or relieve sore muscles. By applying an ice pack to an area on the body, you will reduce the blood flow, therefore reducing the swelling and fluid build-up.

PROBLEM

Ice packs must be kept in a freezer to work properly! Sports teams do not have freezers readily available, but the players often need ice packs during practices and games. Teams need ice packs on hand at all times in case of injury.

CRITERIA

1. Design an ice pack that teams can pack in a first aid kit to always have with them.
2. Your solution must be no larger than 6 in. x 6 in. x 6 in.
3. You must provide evidence from data & reasoning.

CONSTRAINTS

Materials: Sodium bicarbonate, sodium chloride, calcium chloride, citric acid, sodium carbonate, vinegar, plastic bags (any size), tape, water, construction paper, cardboard, thermometers, paper towels, balloons
Usual lab supplies

Teams: 4

Time: 4 days

PROJECT MANAGEMENT

DELIVERABLE	EXPECTATIONS	DUE
ASK: RESEARCH & DATA COLLECTION	Submit your own research that conducted following a written procedure. Enough data is taken to find a design. Accurate representation of the data in tables. Tables are labeled and titled. The tests you conducted are fair tests.	12/7
IMAGINE BRAINSTORMING	Submit a document that includes all brainstorming prior to research. It is organized. It includes at least two ideas for product. Ideas are relevant and testable in the classroom.	12/10
PLAN: DESIGN DRAWING & REASONING	Submit a drawing of your proposed design (by hand or computer). The drawing includes labels of what materials will be used. A paragraph is written about your design to answer the following questions: Why did you choose these materials? How does your research & data support this design? Why did you choose this specific design? What makes it better than the others?	12/10
CREATE/IMPROVE: CONCLUSION	After building your prototype, submit the conclusion document. All questions should be answered & pictures of your prototype should be added.	12/11