Building Knowledge: ICE

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Ice Is Cool

Discussion:

What do you think you know about water?
1 minute
What do you think you know about ice?
1 minute
Tell someone next to you quietly.
When I clap my hands three times, all eyes should look at me. OK?

Chart

What We Think We Know……..
About Water About Ice
What would you like to know……
About Water About Ice

INVESTIGATION EXPERIMENT

Imaginary Story…….Last week I started to drive my car on the street and my car started to slip and slide. Luckily, I was the only person on this street and my car hit a snow pile and stopped. At that minute, I noticed a scientist sitting on the top of the snow pile and she looked so confused. The scientist said, "Will you please help me investigate and solve the problem with ice on the roads?" "Yes, I said. I am going down to _____ to work with very smart students at the _____ Early Elementary Center in _____, ___. I know they will investigate this problem with me."
"Will you help me solve this ice problem?"

INVESTIGATION/EXPERIMENT
Observing Three Kinds of Salt on ICE
Materials: Ice cubes, Magnifier, Measurer
½ teaspoon,
Baggie with Table Salt,
Baggie with Sea Salt
Baggie with Rock Salt
Place one ice cube in the three baggies.

Place ½ teaspoon of one kind of salt on top of each ice cube.
Each team observes one baggie with magnifiers.
Do not touch the bags.
Discuss what is happening to the ice cube.
Which salt melted the ice cube the fastest?
Reason: Larger salt crystals work faster, along with some special chemicals added to the rock salt.

BLACK ICE on the Roads and/or Sidewalks
Salt is needed to melt the ice quickly, and although salt lowers the temperature of water, salt prevents the water from freezing again.

EXPLORING FUN SCIENCE/ART
ICE CUBE PAINTING
Materials: ice cubes, art paper, trash bags (protecting tables/desks), rubber gloves, variety of colors of unsweetened powdered drink (Kool-aid)
What will happen to ice at room

temperature?
What will happen if you use ice cubes to paint a picture with powdered drinks?
Activity……
Lay trash bag over table-top.
Provide an art sheet for each student.
Drizzle powdered drinks to each corner of the paper.
Students pull on gloves, and paint on paper.
Using ice cubes for paintbrushes, students dip ice cube in powdered drinks, and apply to art paper.
Students create on paper.

EXPLORE with the ice cube and Kool-aid colors to paint a picture.
Students enjoy the cold feel of the ice and the wet of the water while seeing colors form while smelling the flavors.

What made the ice cube melt?
Examples: heat of the room, the heat of your hands, the heat of the pressure applied to the holding and pressing the ice cube…

WHOLE CLASS CHART
What WE Learned ABOUT ICE and WATER……

ICE WATER

EXPLORING Activities to Stimulate

I would suggest that the students explore these activities prior to the major lesson. Only one activity should be experienced each day.

#1. Teacher Demonstration

Ice Needs Space

Materials: clear glass filled with water to brim, ice cubes

Will anything happen to the water when I add an ice cube?

Add ice cubes one at a time.

Will the water overflow in the glass when the ice cube melts?

No, level stays about the same.

Reason:

Water from ice cube takes up less space than the ice cube.

When the ICE CUBE forms, it EXPANDS.

#2. Teacher Demonstration

Materials: container (bowl), water, ice cube, match, salt

What do you think salt will do to an ice cube when I lay a match and/or toothpick on it?

Do you think I can pick up the ice cube with the match and/or the toothpick?

Whole class brief discussion…..

Reason: Salt cuts into the ice cube, allowing the match to sink into the ice cube, becoming frozen to it.

#3. Student Partners/Student Teams

OBSERVING an ICE CUBE in a glass of HOT WATER

Materials: Hot water in a clear glass,

ice cube, magnifier for each team.

Team member drops an ice cube in glass of hot water.

Team member holds ear close to glass.

Do you hear anything?

*Student should hear sizzling noise from the ice cube.

Team member uses magnifier to observe the ice cube.

What did you observe with the ice cube?

*Student should observe that the ice cube is getting smaller etc.