Teacher/School: K. Cunningham, S. Donaldson, M. Knapp; Cracker Trail Elem.

Unit Title: "Matter Matters"

Grade: Level 3

Subject/Topics: Hands-on Science, Language Arts, Math, Art

Time Needed: 1 week

Learning Objectives:

To understand the change from gas to liquid to solid when temperature drops to below 32 degrees.

What is essential for students to know or understand about the subject?

Snowflakes are an example of matter. Properties of matter include such things as mass and volume. Matter can change form from a solid to a liquid to a gas under the right conditions.

If students remembered one thing about this study, what would it be? Snowflakes are hexagons that are a solid form of water.

Sunshine State Standards Math:
MA.C.1.2.1, Science: SC.A.1.2.1, SC.A.1.2.2, SC.A.1.2.4, SC.A.2.2.1, Language Arts: LA.A.2.2.1

Materials/Supplies:
Insta snow powder, Snowflake Bentley, paper, scissors, craft sticks, glitter, paint, ribbon, chart tablet, measuring cups, plastic cups, KWL Chart, computer, projector, Think It Through worksheet (symmetry), Snowflake Bentley crossword.

Prerequisite Skills
Properties of matter; solids, liquids, gases; symmetry; temperature; KWL Chart organization; genres of reading

Instructional Procedures
Prior to the lesson, students were told that 3rd grade would have "snow" on the last day of school before the winter break. They were all very curious and excited to begin this lesson. The lesson was introduced by completing the "K and W" on a KWL Chart with the title "Snow/Snowflakes."

We then reviewed the states of matter, properties of matter, including our earlier lab on "oobleck." This review included two powerpoint presentations on matter:

http://www.pasadenaisd.org/teachertoolbox/PPts/Matter%202,pps#259,5,liquids and

http://www.pasadenaisd.org/teachertoolbox/PPts/matter.pps

We then incorporated a literature connection by reading and discussing the biography, Snowflake Bentley, to the students. Students then completed a crossword puzzle on the story with a buddy.
Our math/art connection included a discussion of rays, which we used when making the "craft stick snowflakes." The students painted the snowflakes white and added glitter and a small picture of themselves. The snowflakes were finished by adding either a ribbon to hang it or a magnet. We discussed geometric shapes (including square, triangle, rectangle, hexagon) and had the students cut shapes using construction paper. We continued with a discussion of symmetry with students completing a "Thinking It Through" worksheet where they drew different lines of symmetry on a number of hexagon shapes.
Our culminating activity was making snow from the insta powder we received from the math/science workshop. The students loved it!

We ended back in whole group completing the KWL chart and sharing the story, Axle Annie, by Robin Pulver.

Differentiated Instruction
ESE/ESOL accommodations: hands on materials, create crystal snowflakes with pipe cleaners.
Gifted accommodations: identify all lines of symmetry on hexagons; assist other students with crossword.

Assessment
Our assessments included teacher observations on how well the students were able to complete the KWL chart at the conclusion of the lesson, story crossword puzzle, hexagon worksheet, as well as participation in states of matter discussions.