Hidden Science in Colonial Living

Summary

Students explore the science involved in the making of items used in colonial life: bread, butter, soap, candles, wool, etc.

Main Core Tie

Science - 5th Grade
Standard 1 Objective 2

Additional Core Ties

Science - 5th Grade
Standard 1 Objective 3
Social Studies - 5th Grade
Standard 2 Objective 2

Group Size

Small Groups

Materials

Bar of soap and/or picture
Candle and/or picture
Something made of wool and/or picture
Bread and/or picture
Butter and/or picture
Brick and/or picture

- *The Story of Soap*
- *The Story of Candles*
- The Story of Wool
- The Story of Bread
- The Story of Butter
- The Story of Bricks

Graphic organizers
Journals

- *Physical Change or Chemical* Change

Additional Resources
Books
Colonial Living, by Edwin Tunis; ISBN 9780801862274 (Paperback)
If You Lived in Colonial Times, by Ann McGovern; ISBN 059045160X (Paperback)
If You Lived In Williamsburg in Colonial Days, by Barbara Brenner; 0590929224 (Paperback)

Background for Teachers

When settlements were first established in the colonial period and eventually during the western expansion, they all began by growing their own food and making the things they used everyday. Children grew up helping grow the food and making the necessary items for survival and passed these skills onto their own children.
Many of the things that these early settlers made were science related. One could say that they were

scientists in their own rights. All of the items they needed were made from matter. Some items went through a physical change and some went through a chemical change. Things such as candles, bricks, soap, butter, bread and woolen items that they made daily, weekly, or monthly fall into the categories of physical or chemical changes.

Intended Learning Outcomes

4. Communicate effectively using science language and reasoning.

Instructional Procedures

Invitation to Learn

Show the students a bar of soap, candle, loaf of bread (uncut if possible) bar of butter, brick, and something made of wool. (You could use pictures, too, if the items are not available.)

Ask the students, "If you wanted any of these items, where would they get them?" (From a store.)
Ask them, "What if there were no stores around, what would you do then?" (They would have to make them themselves.)
Ask, "Where would you get the materials to make them?" (Some may know the answers that candles come from tallow or wax, bread comes from wheat, butter comes from cream, bricks are made of clay, wool comes from the hair of sheep, and soap is made from lard and lye.)
Ask, "How would you know how to make them and where to get the materials? (Their parents told them. These learned the survival skills they needed and passed them down from generation to generation.)
Ask, "How is making these things part of science?" (They needed to figure out how to make these items by experimenting with them. They put ingredients together to make a new substance. They made these items look different from their beginning sources.)

Tell them that for the next couple of days they are going to read about each item to know the history of each and how they were made. They will find out where the materials were found and the process used to make them. They will record some findings in their journals and other findings on graphic organizers. When they are done reading and writing about the items, have the students write how the making of these items relates to science and the changing of matter to a different form by way of physical change and chemical change.

Instructional Procedures

Divide the students into six groups.
Put each of the listed items at a different station with the product and/or picture with the related reading.
Appoint each group to a station. Have the students read about the item and discuss the item.
Have the students use a graphic organizer to write down their findings of the history of the item and how it was made. Have them note at the bottom of each sheet how making it relates to changing matter. They can also write things that were interesting to them in their journals.
Have them rotate to the next station and do the same thing until they are done with all six stations. (This activity may take two or three days to study each product and write about it.)
When the rotations are done, have the students share what they learned.
Ask them to also share how each of these items not only has to do with social studies but how science is involved in making each of these items.
Have them write in their journals whether each product is made by a physical change or chemical change.

Extensions

Curriculum Extensions/Adaptations/ Integration

All learners can do more research on the daily living in colonial days and what the colonists did

each day for survival. They can present what they have learned with displays and reports.
Advanced learners can learn about inventions from various times in history to make the work easier.
Learners with special needs can work with others when researching the daily life of the colonists.
Learners with special needs can look and touch the products in the centers to understand their uses in the home.
Have the students read the book *If You Lived in Colonial Times* by Ann McGovern. Have them list the things that the colonists made. Have them speculate whether the final product was a physical or chemical change.

Family Connections

Send pictures and the graphic organizers home of the items that were in the centers and have the students explain to their families what each of them is and how they were made by the colonists.
Have the students talk to their families about how science is very important in our world and that just about everything that we make or purchase has to do with a scientific process of discovery. Have them come back with a list of items found in their homes that we use each day that are a product of science.

Assessment Plan

Review the graphic organizers to make sure students have written down the important topics and explanations while at each center.
When the students are done with the centers, have a discussion looking for proper answers and minimizing misconceptions.
Show the pictures of the items and have the students write the process that is used to make each item (informal assessment).
Have a discussion about how making these items has to do with changing matter in the form of a physical or chemical change.
Have the students complete the *Physical Change* or *Chemical Change* worksheet.

Bibliography

Research Basis

Black, R. (2005). Why demonstrate matter? *Science and Children*, Vol. 44 (Number 1), page 56.
It is still a good practice to have teacher-centered demonstrations in the classroom. Children get excited when they see unfamiliar objects in front of them that they know are going to part of a science experiment. Careful planning and questions techniques give the teacher more control for the students to understand the results.
Enfield, M. (2007). Discussion maps make sense. *Science and Children*, Vol. 44, No. 5, pp. 46-49.
Discussion can be useful for teachers in evaluating students' ideas. Discussion offers windows for teachers to help understand student thinking. Through discussions, students can express their ideas. Some students feel more comfortable during a discussion than during any other school task. The "discussion map" lets a teacher gain insight into the students' level of participation and helps the teacher get an idea if the student understands the concept taught.

Authors

Utah LessonPlans