

WAXY BUSINESS

Write or draw a secret message to a loved one or friend and discover the science behind decoding them.

Big Idea

Some materials are *hydrophobic* – repels water, let's test out which one works best.

Standards

NGSS 2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.	Students will analyze which wax tools repelled water the best to show their message.
CCSS.MATH.CONTENT.K.MD.A.2 Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference.	Students will compare the wax tools to decide which wax is more hydrophobic and describe what makes the wax more/less hydrophobic.
IELDS 12.C Explore the physical properties of objects by identifying, describing and comparing the physical properties of objects (a), and experimenting with changes in matter when combined with other substances (b).	Students will describe and compare properties of the paper, wax, and watercolor and experiment with what happens when these substances are combined.

Materials

- White paper
- Parafin wax
- White candles
- White crayons
- White wax pencil
- Carnauba wax (white lipstick)
- Beeswax
- Trays
- Liquid watercolor paint
- Paintbrushes
- Towels for spills/drying
- Scrap paper
- Drying rack

Setup

Place trays on table at each seat with a blank sheet of paper. Along the center of table are the wax-based items. Have cups of liquid watercolor with paintbrushes on counter or on the side until ready to use. Drying rack off to side.

Directions

1. Write or draw on a blank piece of paper using one (or as many as you want) of the wax-based tools.

2. Pass the paper to someone else to “decode” the message by painting watercolor on the paper.
3. Try another message with another wax tool and paint over it. Encourage students to try all the different wax tools and water colors.
4. When students are done, messages can be placed to dry on the drying rack.

Investigation Questions: What wax tool repelled water the best? Which color makes the message easiest to read? Where else do we see wax? What is different about the water on the paper versus on the wax? What is the same about the wax and our rain gear? What's different?