

# What's the Matter?

## Objective:

*Students will discover the effects various experimental conditions have on changing crayons from the solid state of matter to a liquid. They will predict which heat generating or insulating conditions will melt crayons to a point where the colors mix and compare their predictions with the experimental results.*

**! Safety Caution:** Heat sources are needed for this experiment. Do not permit any heat sources that pose fire hazards. Overheating crayons may release irritating fumes.

## Supplies Needed:

- Crayola® crayons
- various types of containers and surfaces such as tin cans, cardboard boxes, mirrors, wax paper, and/or mylar bags
- various sources of heat such as Sun, hair dryer, heat generating lamp and/or heat register
- insulation, such as newspaper
- magnifying glass

## Procedure and Results:

1. Have a class discussion about the effects heat can have upon various states of matter (melting some items, solidifying others, such as eggs). Discuss the definition of melting point. Explain that, at 120° F, the wax in crayons begins to melt, changing from a solid to a liquid. Have students predict what heat sources and various heat conducting conditions might cause crayons to melt.

2. Divide the class into cooperative learning teams which will each generate a list of variable conditions and then experiment with only those you deem safe!

3. Some of the conditions the reviewer schools recommend include: comparing tin cans with exteriors painted black versus tin cans painted white, set in direct sunlight or under heat generating lamp. Since black absorbs more light and white reflects the light, the crayons in the black can melted while crayons in the white can did not. Reviewer schools also found bright sun light concentrated under a magnifying glass caused crayons to melt the fastest, while a hair dryer pointed at a crayon also melted it quickly.

**FACT:**  
AT 120° F THE WAX IN THE CRAYONS STARTS TO MELT, CHANGING THE STATE OF MATTER FROM A SOLID TO A LIQUID.

