What is a polymer?
Turn milk into plastic

Milk + Vinegar → Casein plastic

Casein spheres → Unfolded casein chains
Materials you need

**Teacher**
- Measuring cup
- Milk
- Stovetop oven or microwave
- Microwaveable container
- Thermos
- White vinegar

**Students**
- Work surface that is safe to get damp
- Prepared hot milk
- Heat-resistant cup
- Prepared vinegar
- Paper towels
- Spoon
- Optional: food coloring, glitter, or markers
Add hot milk to vinegar

- Measure out 1 cup of milk with the help of your teacher
- Add milk to the prepared cup with vinegar
Stir milk-vinegar mixture

• Mix the hot milk and vinegar with a spoon for a few seconds

What happens to the milk?
Scoop out the solid curds

Four layers of paper towels
Remove excess liquid

- Fold paper towel stack over the curds and press down on them
- Use two more paper towels to press down on top of the curds
Knead the curd with your hands
Mold and shape the milk plastic

• Knead the polymer well before shaping
• Optional: use food color, glitter or markers to decorate your products
• Let your milk plastic objects dry on a paper towel for about 48 hours