

## WHAT ARE WE INVESTIGATING?

Will hot chocolate dissolve faster in cold water, room temperature water, or hot water?

## MATERIALS:

- Pack of hot chocolate
- Teaspoon
- Mugs
- Water
- Timer
- Strive Academy's Engineering Design Process Handout (found at [www.striveacademy.org](http://www.striveacademy.org))
- Pencil or Pen

## EXTENSION:

\* Try the experiment again but with different liquids such as milk, orange juice, etc.

\* Check out how hot chocolate is made:

<https://www.youtube.com/watch?v=f6UtyISxCQU>

# Hot Chocolate Challenge

## DIRECTIONS:

1. Gather all your materials. Our materials are just suggestions - feel free to add other things too!
  2. On your handout (found at [www.striveacademy.org](http://www.striveacademy.org)), fill in the title of your experiment (Dissolving Hot Chocolate).
  3. On your handout, fill in your hypothesis. You want to answer the question: Will hot chocolate dissolve faster in cold water, room temperature water, or hot water?
  4. On your handout, draw a design of what your experimental set-up will look like. You will want 3 different mugs/cups so that you can dissolve a teaspoon of hot chocolate in each.
  5. Using your teaspoon, put one scoop of hot chocolate in each mug.
  6. Add one cup of ice cold water to your first mug. Use a spoon to stir the hot chocolate until it dissolves. Use your timer to see how long it takes to dissolve. If you reach 5 minutes, you can stop. Record your time under "Data Collection/Observation".
  7. Repeat Step 6 for the other temperatures of water. Add one cup of room temperature water to your second mug and the hot water (have a parent help heat this up!) to your third mug.
  8. Under "Results", list the water temperatures from fastest dissolving to slowest dissolving.
  9. Answer the "analysis" questions on your handout:
    - Was your hypothesis correct?
    - Why do you think hot chocolate dissolves fastest in hot water compared to cold water?
    - How could you make this experiment more scientific?
  10. Feel free to add the rest of your hot chocolate package to the hot water mug and enjoy!
- \*\* Try the extension activities on the first page for more fun! \*\***