



CORNSTARCH MIXTURE

SCIENCE: STATES OF MATTER

Every child is different. Do what works best for encouraging each child's exploration of this suggested activity.

OBJECTIVE OF THIS INVESTIGATION:

Children will explore changing states of matter as they slowly add water to cornstarch.

VOCABULARY:

- Solid
- Liquid
- Thick
- Thin
- Cohesion/cohesiveness
- Viscous/viscosity

MATERIALS:

- cornstarch
- water
- large mixing bowl
- spoon/utensil for mixing (including wooden spoons, if possible, which are often more comfortable for children than metal)

PROGRESSION STEPS (SCIENCE: STATES OF MATTER):

Visit [STEMIE Learning Trajectories](#) for details

- Liquids Identifier
- Solids Identifier
- Change Recognizer

THIS INVESTIGATION:

- Gather children together around the listed materials.
- Ask children what they notice about the different materials
 - **“What do you notice about the cornstarch? How does it look? Feel? (Solids Identifier)”**
 - **“What about the water?” (Liquids Identifier)**
- Children might notice that the water is clear, can be poured, changes shape, and parts that are split up will come back together (cohesion).
- Add about 1 cup of cornstarch to the bowl. Ask children to make a prediction:
 - **“What do you think will happen when we add water?”**
- Add a little bit of water and stir.
- Ask children what they notice. Allow children to touch, smell, and listen to the sounds made when the mixture is stirred, squeezed, etc.

ADAPTATIONS:

See [A Guide to Adaptations](#) for general ideas and strategies

Materials:

- Provide tools or gloves to explore cornstarch with if children don't want to touch with their hands.
- Do on a tray or outside to minimize messes.

Instruction:

- Provide hand-under-hand support for mixing as tolerated/needed





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THIS INVESTIGATION (CONTINUED):

- Continue adding a little bit of water at a time as you stir until you reach a thick, syrupy consistency (increased viscosity). Provide children small amounts of water to add and provide spoons so they can mix too.
- Ask children to continue making observations as more water is added.
- Allow children to continue to touch and explore the mixture. Ask children about the new mixture and how it changed:

“How did the cornstarch change? How did the water change?” (Change Recognizer)

“Do you think the mixture is a solid or a liquid? What about it like a solid? What about it is like a liquid?”

“Is the mixture easier or harder to pick up with a spoon than the water?”

“Can you draw a shape in the mixture? What about in water?”

ADAPTATIONS (CONTINUED)

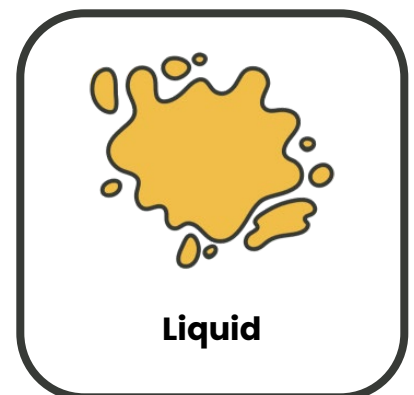
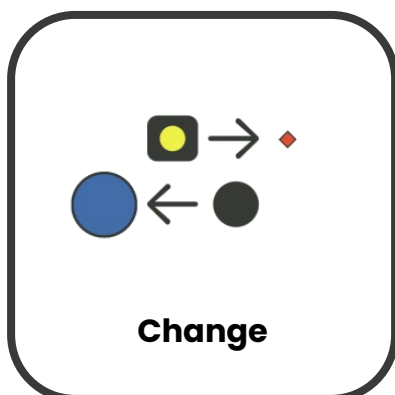
Instruction (continued):

- Provide visuals of properties of liquids and solids as well as of the states of matter themselves for children to use for comparison and to communicate their ideas and findings.
- Label properties of solids and liquids as children explore.

HOW TO CONTINUE THIS INVESTIGATION:

- Continue the discussion of states of matter. Ask children to think about other liquids or solids that can change states of matter (e.g., water to ice and vice versa). Ask children to explain why those states of matter change.
- Draw attention to the bowl that you are mixing in as well as the materials added. Does the bowl change shape? What about the water?

SUPPORT MATERIALS:





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SUPPORT MATERIALS:

Use the blank ones to make your own!



Solid



Temperature

