States of Matter in a Baggie

Second grade marks a shift in scientific learning, with children focusing on more complex concepts like states of matter and the water cycle. These abstract ideas are much easier for kids to grasp when paired with a hands-on experiment. Help your child understand the states of matter with this simple activity, which covers the effect of temperature.

What You Need:

- Colorful powdered drink
- Water
- Ice cube tray
- Plastic baggie (zip-top)
- Masking tape

What You Do:

1. Mix a batch of your powdered drink. Fill the ice cube tray with the mixed drink, and put it in the freezer to harden.
2. Instruct your child to put a few cubes of the juice ice into the plastic baggie, and seal it up tightly.
3. Help your kid squeeze the ice cubes in the baggie. Ask, what state of matter do these cubes represent? (They maintain their shape, so they're in a solid state.)
4. Using the masking tape, attach the baggie to a window inside, where it will be in direct sunlight for the majority of the day.
5. Once every half an hour, have your child observe the baggie. What is happening? Are the ice cubes still solid, or has it become a liquid or gas? How does she know? (At this point, it should be a liquid, taking the shape of its container and flowing.)
6. Several hours after the ice has become liquid, you and your child may notice droplets of water forming at the top of the baggie. Explain that this is water vapor, caused by the heat of the sun evaporating water in the baggie. Tell her that water vapor is a gas, but since it can't escape the bag, it begins to condense and form droplets of water, becoming a liquid again.
7. Ask your kid some questions about these changing states of matter, including: What causes the water to change from one state of matter to another? (The temperature.) What could she do to prevent the water droplets from forming in the baggie? (She could refreeze the water, so it could become a solid again. Or, she could open the baggie to let the water vapor escape. Eventually all the water would evaporate into the air.) What tastes the best: frozen juice, cold liquid juice, or warm liquid juice? Encourage her to sample all three to be sure.