

**Lesson plan topic:** States of Matter and Changes of State

**Recommended grade level:** 3rd Grade

**Link to lesson plan:** <https://canva.link/9r3lir4u36qtkju>

**Objectives: By the end of this lesson, students will be able to:**

- Identify the three main states of matter (solid, liquid, gas).
- Explain what a change of state is.
- Describe different types of changes of state (melting, freezing, evaporation, condensation, sublimation, deposition).
- Understand that heat is added or removed during changes of state.

This facilitator's guide is designed to help you lead the lesson plan on "Changes of State in Matter." For many of the slides, you can read directly from the slides, but for slides that are highlighted, there are some additional speaking points listed.

**Slide breakdown:**

- **Slide 1: Title slide**
  - *No specific speaking points needed. Use this slide to welcome students and introduce the topic.*
- **Slide 2: States of Matter**
  - **Speaking points:**
    - Introduce the three states of matter: solid, liquid, and gas. Briefly describe their general characteristics (e.g., solids have a fixed shape, liquids take the shape of their container, gases fill their container).
    - Engage students: "Is it possible for a solid to turn into liquid or gas? How does it occur?" Encourage initial thoughts and predictions.
- **Slide 3: Change of Matter**
  - **Speaking points:**
    - Define "Change of State" as when matter changes from one state to another.
    - Emphasize the key points: it's reversible, it's a physical change, and it occurs when heat is added or removed. Clarify that it *does* involve temperature changes, despite the slide's phrasing, as adding/removing heat changes the temperature. Explain that the *substance itself* doesn't change into a new substance (it's still water, whether ice, liquid, or vapor).
- **Slide 4: Types of Changes of State in Matter: MELTING & FREEZING**
  - **Speaking points:**

- Explain "Melting": solid changes into liquid when heat is *added*. Use the butter example.
- Explain "Freezing": liquid changes into solid when heat is *removed*. Use the water to ice example.
- Ask students for other examples of melting and freezing they've observed.
- **Slide 5: Types of Changes of State in Matter: EVAPORATION & CONDENSATION**
  - **Speaking points:**
    - Explain "Evaporation": liquid changes into gas when heat is *added*. Use the wet clothes drying example.
    - Explain "Condensation": gas changes into liquid when heat is *removed*. Use the cloud formation example.
    - Ask students for other examples of evaporation (e.g., puddles drying) and condensation (e.g., water on a cold glass).
- **Slide 6: Types of Changes of State in Matter: SUBLIMATION & DEPOSITION**
  - **Speaking points:**
    - Explain "Sublimation": solid changes *directly* into gas (skipping liquid) when heat is *added*. Use the dry ice example. Emphasize the "directly" aspect.
    - Explain "Deposition": gas changes *directly* into solid (skipping liquid) when heat is *removed*. Use the frost formation example.
- **Slide 7: What's That State Again?**
  - **Speaking points:** Review all the types of changes of state listed. You can turn this into a quick recall activity by asking students to name a change of state and describe it.
- **Slide 8: What Is the Most Interesting Property of Matter for You?**
  - **Speaking points:**
    - This is a discussion and reflection slide. Ask students to think about the question.
    - Encourage them to explain *how* that property makes life possible on Earth.
    - Facilitate a "research buddy" activity where students discuss their answers with a partner.
- **Slide 9: Lets Review!**
  - **Speaking points:** Lead a quick review quiz. Have students fill in the blanks, either verbally or by writing down their answers.
- **Slide 10: Lets Review! ANSWERS**
  - **Speaking points:** Reveal the answers and review them with the class. Address any misconceptions.

- **Slide 11: Why is this Important?**
  - *Speaking points:*
    - Read the text on the slide.
    - Emphasize the importance of matter in everyday life and how it makes up everything around us.
    - Reinforce the idea that understanding matter is fundamental to science.
- **Slide 12: Thank You!**
  - *Speaking points:* Thank students for their participation.

**Potential activities post lesson plan:**

- Conduct simple experiments demonstrating changes of state (e.g., melting ice, boiling water for steam, observing condensation on a cold surface).
- Have students draw diagrams illustrating each change of state.
- Create a "Matter Museum" where students bring in objects and classify them as solid, liquid, or gas, and discuss potential changes of state.

You've now completed this lesson plan!

If you have any feedback on how to improve this lesson or future lesson plans, please email: [foreverychildus@gmail.com](mailto:foreverychildus@gmail.com)

If you have any topics for future lesson plan ideas, please email: [foreverychildus@gmail.com](mailto:foreverychildus@gmail.com)

This lesson plan was designed by high school and college students in the student-led organization called For Every Child. Thank you for using our lesson plan and we hoped you enjoyed it!