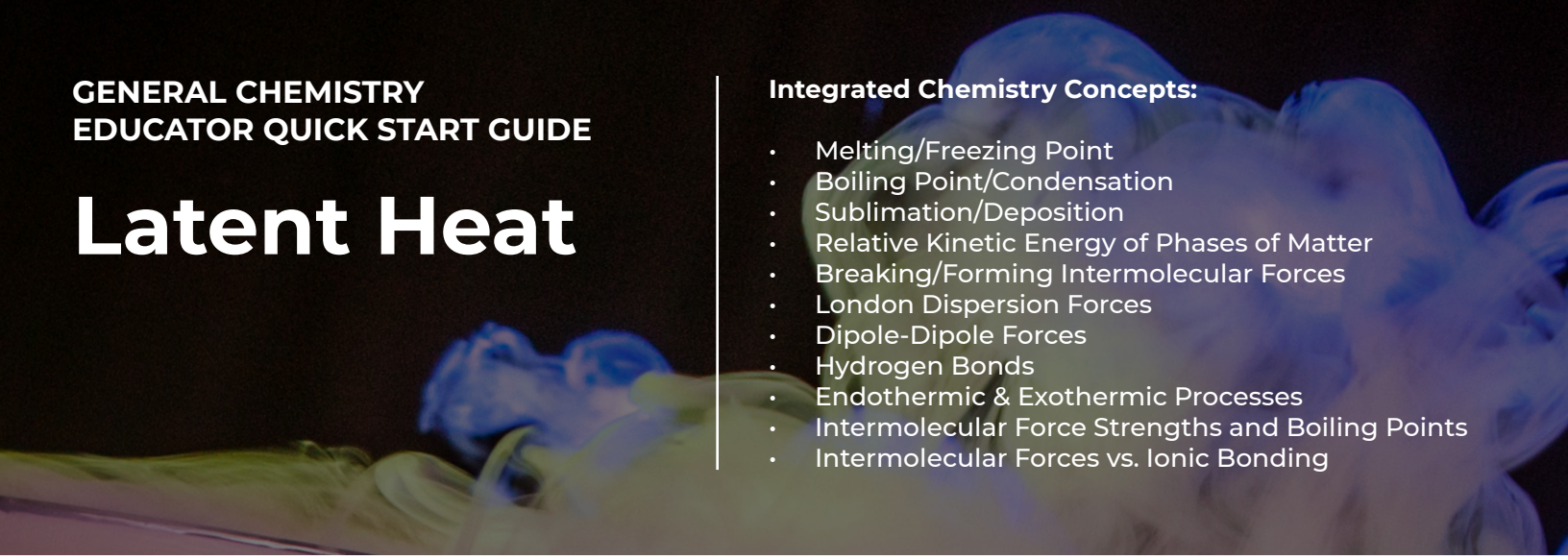

GENERAL CHEMISTRY
EDUCATOR QUICK START GUIDE

Latent Heat

Integrated Chemistry Concepts:

- Melting/Freezing Point
- Boiling Point/Condensation
- Sublimation/Deposition
- Relative Kinetic Energy of Phases of Matter
- Breaking/Forming Intermolecular Forces
- London Dispersion Forces
- Dipole-Dipole Forces
- Hydrogen Bonds
- Endothermic & Exothermic Processes
- Intermolecular Force Strengths and Boiling Points
- Intermolecular Forces vs. Ionic Bonding

Use Collisions HE PRE-INSTRUCTIONALLY to engage your students and explore a topic.

Assign your students the first 9 levels of Latent Heat. During gameplay, ask your students to answer the following guided questions:

1. In Level 1, what phase did you start with (solid, liquid, or gas)? What phase did you end with?
2. In Level 1, did you heat or cool the particles? Did you break or form IMFs?
3. In Level 2, what phase did you start with (solid, liquid, or gas)? What phase did you end with?
4. Is energy used or released when heating a particle? Is energy used or released when breaking IMFs?
5. Is energy used or released when cooling a particle? Is energy used or released when forming IMFs?
6. Compare and contrast the appearance of the molecules in each phase (solid, liquid, and gas).
7. Why do you think the game asks you to physically shake the particles with your cursor?

Use Collisions HE POST-INSTRUCTIONALLY to practice, review, and extend the learning.

After instruction, encourage your students to work through the remaining core game levels. To check for student understanding, here are some additional guided questions to incorporate into your lesson:

1. Explain the rules of the Latent Heat game, using some or all of the following keywords: solid, liquid, gas, phase change, energy, intermolecular forces
2. Which process requires energy? Solid→Liquid OR Gas→Liquid
3. In Level 12, what type of phase changes did you complete?
4. What is the relationship between IMFs and energy used? Which IMFs require more energy to break or form?
5. Which amount of energy is greater—the energy required to convert a solid to a liquid or a liquid to a gas? Explain your answer.

You can also use the Latent Heat Sandbox to highlight a specific concept integrated into gameplay and encourage your students to earn the built-in Achievements.

Additional resources:

- Latent Heat Content Area Overview
- Latent Heat Extension Activity
- Latent Heat Formative Assessment

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