GRADE 7

Evaluation Checkpoint #1 (DUE APRIL 7)

Activity: Students create a comic strip that takes a real life example and demonstrates the particle theory of solids, liquids and gases. The comic must include:

1. ways in which heat is produced
2. the processes that each state undertakes in order to physically change, as well as
3. what happens to the particles themselves (how heat affects the motion of particles and the effects of heat on volume in solids).

Overall Expectation 3.Demonstrate an understanding of heat as a form of energy that is associated with the movement of particles and is essential to many processes within the earth's systems (7s62).

	Level 4	Level 3	Level 2	Level 1
3.2 state the postulates of the **particle theory** of matter (7s51)	All postulates of the particle theory of matter are incorporated	Most postulates of the particle theory of matter are incorporated	Some postulates of the particle theory of matter are incorporated	Few postulates of the particle theory of matter are incorporated
*3.2 identify ways in which **heat is produced** (7s72)*	6+ ways in which heat is produced are incorporated	4-5 ways in which heat is produced are incorporated	2-3 ways in which heat is produced are incorporated	0-1 ways in which heat is produced are incorporated
*3.1 use the **particle theory** to compare how **heat affects** the motion of particles in a solid, a liquid, and a gas (7s71)*	All postulates of the particle theory are used to compare how heat affects the motion of particles in a solid, a liquid, and a gas	Most postulates of the particle theory are used to compare how heat affects the motion of particles in a solid, a liquid, and/or a gas	Some postulates of the particle theory are used to compare how heat affects the motion of particles in a solid, a liquid, or a gas	Few postulates of the particle theory are used to compare how heat affects the motion of particles in a solid, a liquid, or a gas
*3.3 use the **particle theory** to explain the **effects of heat on volume in solids**, **liquids,** and **gases** (7s73)*	All postulates of the particle theory are used to explain the effects of heat on volume in solids, liquids, and gases	Most postulates of the particle theory are used to explain the effects of heat on volume in solids, liquids, and/or gases	Some postulates of the particle theory are used to explain the effects of heat on volume in solids, liquids, or a gases	Few postulates of the particle theory are used to explain the effects of heat on volume in solids, liquids, or a gases

Evaluation Checkpoint #2

Challenge: Take a real recipe and modify it to include the following: concepts and terms

- identify the ways in which heat is produced in the recipe (conduction, convection, and/or radiation)
- identify all of the ingredients as pure substances, mixtures, mechanical mixtures, and/or solutions (solvents and solutes)
- use the particle theory to describe the difference between pure substances and mixtures
- describe the solubility and rate of dissolving of the ingredients
- describe the concentration of a solution as unsaturated or saturated as well as in qualitative terms (e.g., dilute, concentrated) and in quantitative terms (e.g., 5 grams of salt in 1000 ml of water)
- use the particle theory of matter to compare how heat affected the motion of particles and explain the effects of heat on the volume of the recipe

Overall Expectations 3. Demonstrate an understanding of the properties of pure substances and mixtures, and describe these characteristics using the particle theory (7s41).
3. Demonstrate an understanding of heat as a form of energy that is associated with the movement of particles and is essential to many processes within the earth's systems (7s62).

	Level 4	Level 3	Level 2	Level 1
3.2 identify ways in which **heat is produced** (7s72) and 3.4 explain how heat is transmitted through **conduction,** 3.6 **radiation**, (7s76) and/or 3.5 **convection**, (7s75)	Identifies and explains all ways in which heat is produced in the recipe and explains (using scientific vocabulary) how heat is transmitted through conduction, convection, and/or radiation with a high degree of effectiveness	Identifies all ways in which heat is produced in the recipe and explains how heat is transmitted through conduction, convection, and/or radiation with considerable effectiveness	Identifies some ways in which heat is produced in the recipe and explains how heat is transmitted through conduction, convection, and/or radiation with some effectiveness	Identifies one/no ways in which heat is produced in the recipe and explains how heat is transmitted through conduction, convection, and/or radiation with limited effectiveness
3.1 **distinguish** between **pure substances** (e.g., distilled water, salt, copper pipe) and **mixtures** (e.g., salad dressing, chocolate chip cookies) (7s50) and 3.4 distinguish between **solutions** and **mechanical mixtures** (7s53) and 3.6 identify the components of a **solution** (e.g., **solvent, solute**) (7s55)	All ingredients are distinguished correctly as pure substances or mixtures. Mixtures are further identified as mechanical mixtures or solutions and components of solutions are identified as solvents or solutes	Most ingredients are distinguished correctly as pure substances or mixtures. Mixtures are further identified as mechanical mixtures or solutions and components of solutions are identified as solvents or solutes	Some ingredients are distinguished correctly as pure substances or mixtures. Mixtures are further identified as mechanical mixtures or solutions and components of solutions are identified as solvents or solutes	Few/No ingredients are distinguished correctly as pure substances or mixtures. Mixtures are further identified as mechanical mixtures or solutions and components of solutions are identified as solvents or solutes
3.3 use the **particle theory** to **describe** the difference between **pure substances** (which have identical particles) **and mixtures** (which have different particles) (7s52)	With a high degree of accuracy, the particle theory is used to explain the difference between pure substances and mixtures	With considerable accuracy, the particle theory is used to explain the difference between pure substances and mixtures	Pure substances or mixtures are described with some accuracy	Pure substances or mixtures are described with limited accuracy
3.8 describe the **concentration** of a solution in **qualitative** terms (e.g., dilute, concentrated) and in **quantitative** terms (e.g., 5 grams of salt in 1000 ml of water) (7s57)	The concentration of solutions are described in qualitative and quantitative terms with a high degree accuracy	The concentration of solutions are described in qualitative and quantitative terms with considerable accuracy	The concentration of solutions are described in qualitative or quantitative terms with some accuracy	The concentration of solutions are described in qualitative or quantitative terms with limited accuracy
3.1 use the **particle theory** to compare how **heat affects** the **motion** of particles in a solid, a liquid, and a gas (7s71) and 3.3 use the **particle theory** to explain the **effects of**	The particle theory is used to explain the effects of heat on the volume and motion of particles in solids, liquids, and gases	The particle theory is used to explain the effects of heat on the volume or motion of particles in solids, liquids, and gases	The effects of heat on the volume or motion of particles in solids, liquids, and gases is explained with some effectiveness	The effects of heat on the volume or motion of particles in solids, liquids, and gases is explained with limited effectiveness

heat on volume in solids, **liquids,** and **gases** (7s73)				