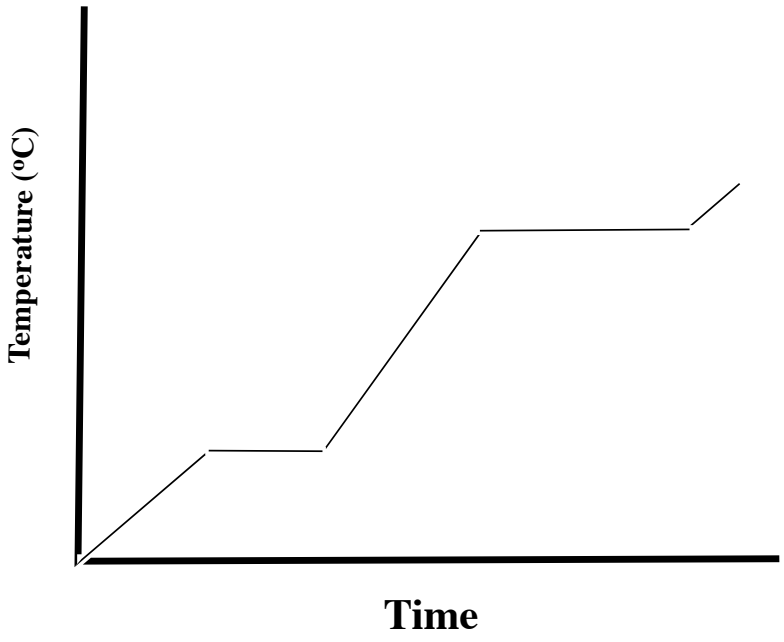
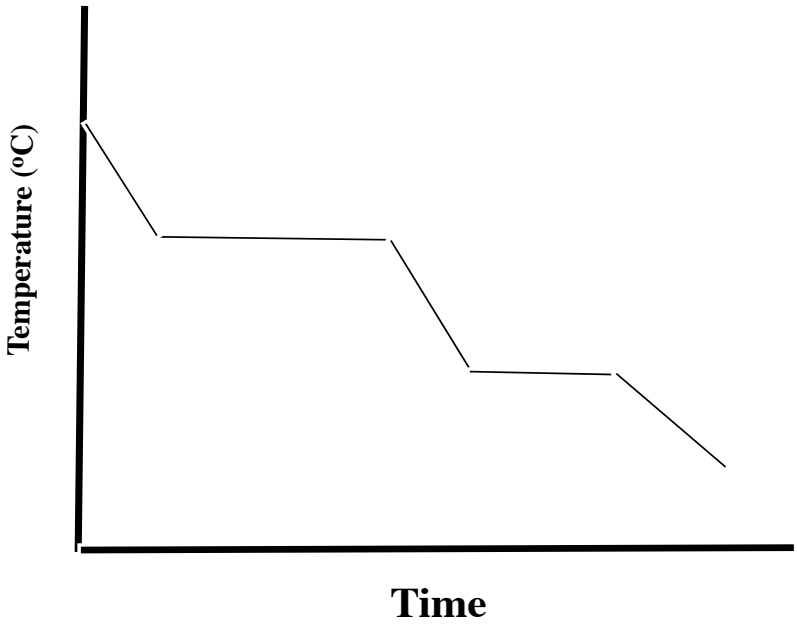
CONCEPT: HEATING & COOLING CURVES

In heating and cooling curves we have the representation of the amount of heat absorbed or released during phase changes.

Heating Curve



Cooling Curve



Specific Heat of Ice	$2.09 \frac{J}{g \cdot °C}$
ΔH_{Fusion}	$334 \frac{J}{g}$
Specific Heat of Water	$4.184 \frac{J}{g \cdot °C}$
$\Delta H_{Vaporization}$	$2260 \frac{J}{g}$
Specific Heat of Steam	$1.84 \frac{J}{g \cdot °C}$

PRACTICE: HEATING & COOLING CURVES

EXAMPLE: How much energy (kJ) is required to convert a 76.4 g acetone (molar mass = 58.08 g/mol) as a liquid at -30 ^{o}C to a solid at -115.0 ^{o}C?

Specific Heat of Solid	$1.65 \frac{J}{g \cdot {}^{o}C}$
ΔH_{Fusion}	$7.27 \frac{kJ}{mol}$
Specific Heat of Liquid	$2.16 \frac{J}{g \cdot {}^{o}C}$
Specific Heat of Gas	$1.29 \frac{J}{g \cdot {}^{o}C}$
$T_{Melting}$	$-95.0\ {}^{o}C$

PRACTICE: If 53.2 kJ of heat are added to a 15.5 g ice cube at - 5.00 ^{o}C, what will be the resulting state and temperature of the substance?

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