Warm-up:

1. Compare & Contrast the words temperature & heat.

- Temperature: measure of avg KE
  - ↳ usually discuss in terms of hot/cold
  - ↳ descriptors of heat [measurement of energy transfer]

- Thermometer: KE is transferred between thermometer and surroundings
  - ↳ Galileo credited as first inventor

- Celsius: 0°C–100°C → water as reference
- Fahrenheit: 32°F–212°F → Body Temperature
- Kelvin: used in research
  - ↳ Absolute zero: no KE [theoretical value]
  - ↳ 0 K = -273°C

$$°F = \left[\frac{9}{5} \cdot °C\right] + 32.0 \qquad °C = \frac{5}{9} \cdot [°F - 32.0]$$

$$K = °C + 273$$

Practice:

- Convert body temp [98.6°F] to °C & K.

$°C = \frac{5}{9}[98.6 - 32] = 37\ °C \qquad K = 37 + 273 = 310\ K$

- Convert room temp [70°F] to °C & K.

$°C = \frac{5}{9}[70 - 32] = 21.1\ °C \qquad K = 21.1 + 273 = 294.1\ K$

- Convert -273°C to Fahrenheit.

$°F = \left[\frac{9}{5} \cdot -273\right] + 32.0 = \boxed{-459.4\ °F}$