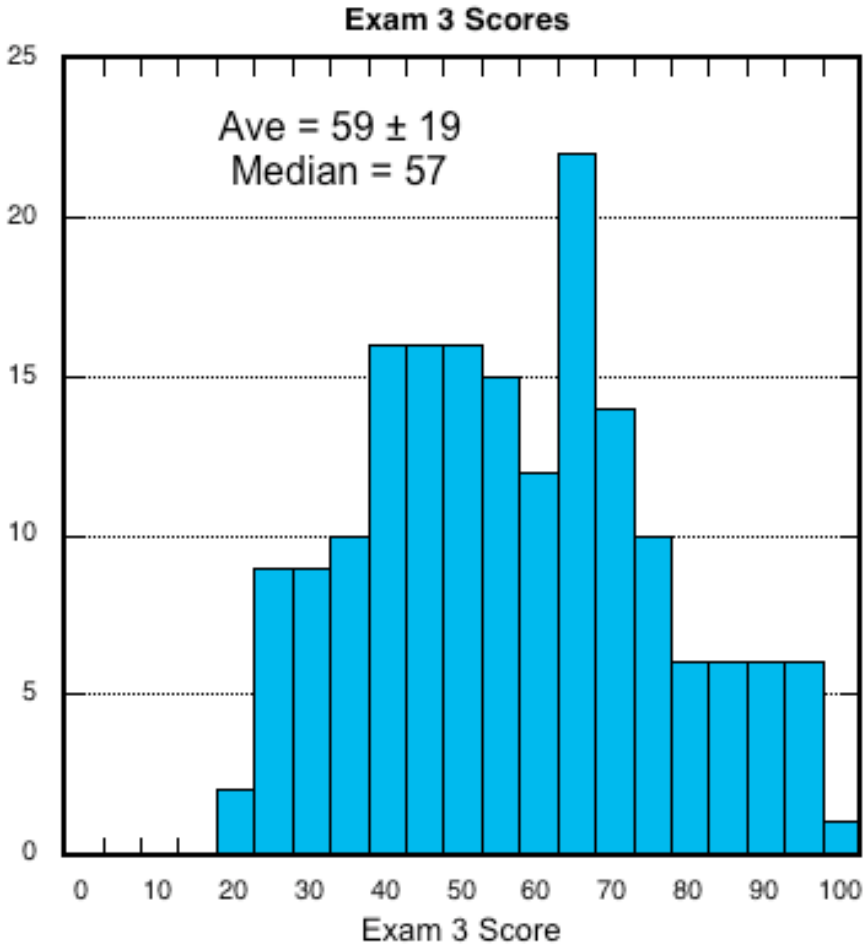
3rd Evening Exam

Not what I had hoped for



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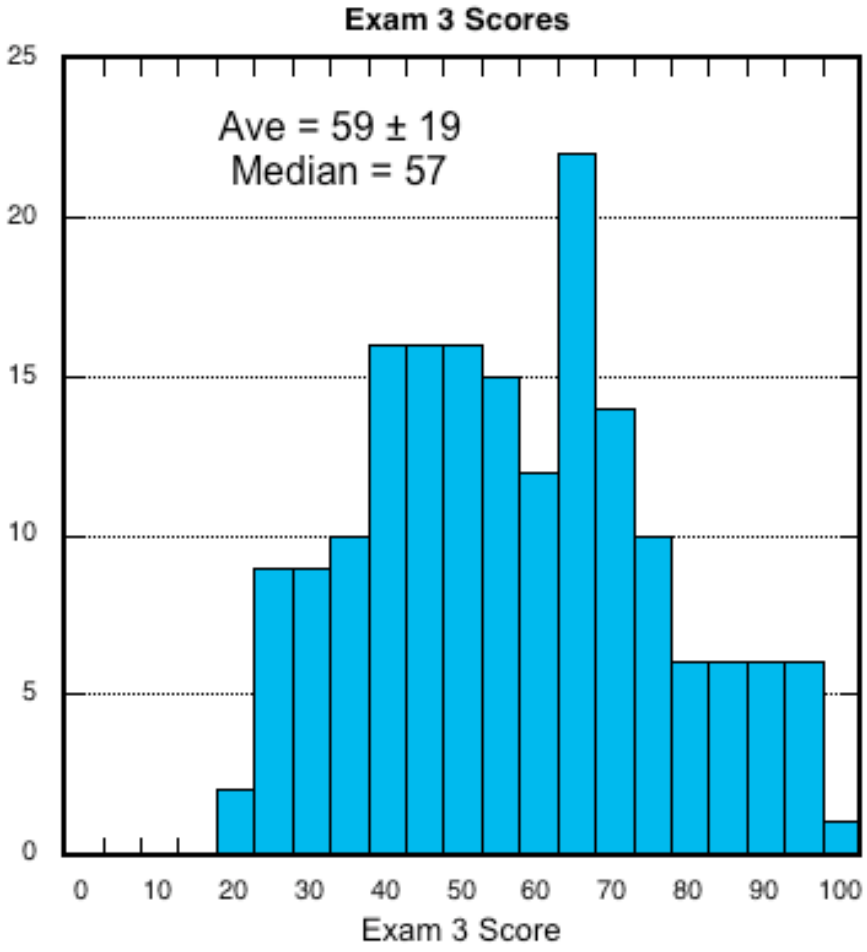

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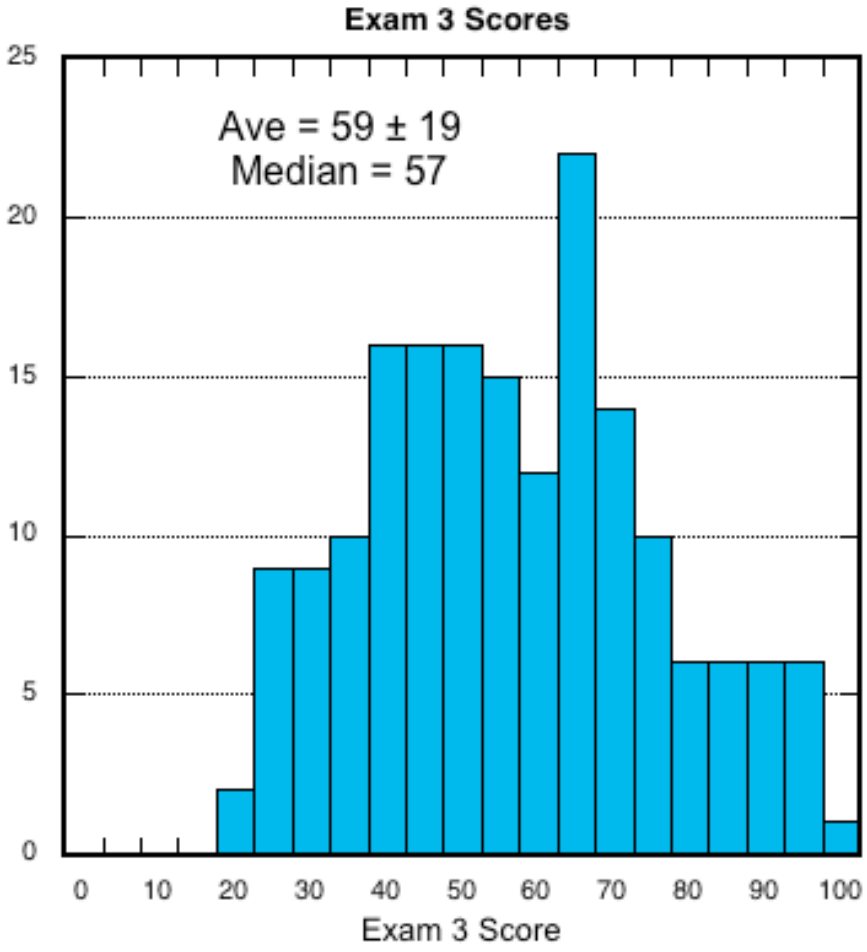

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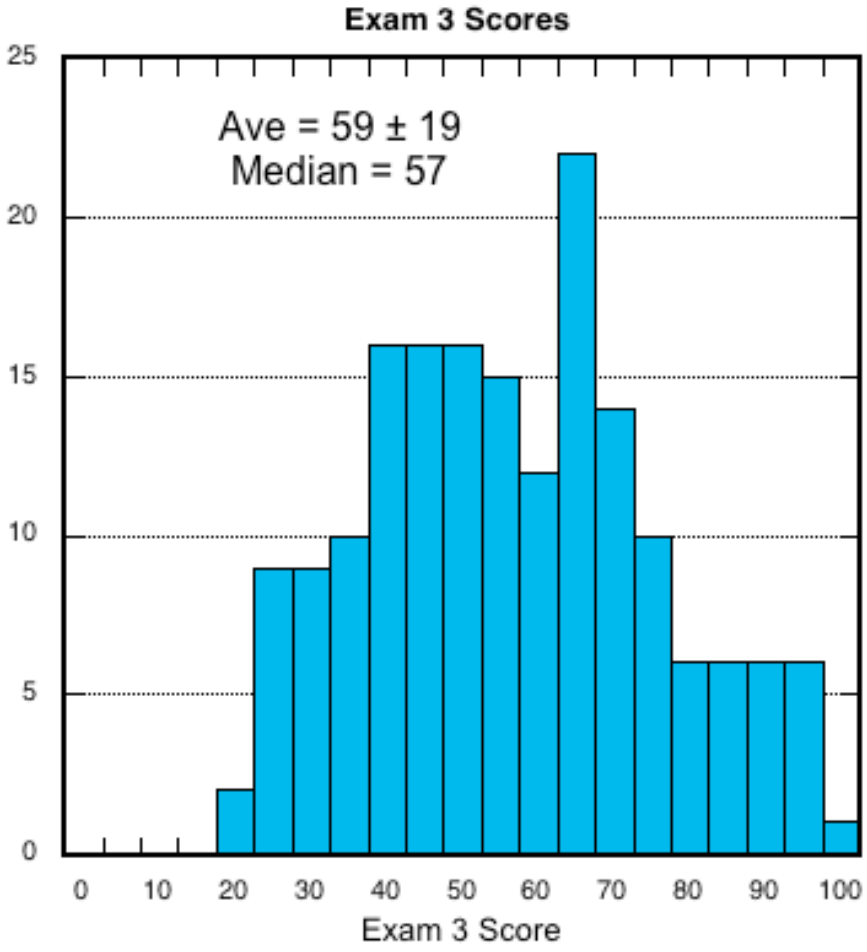

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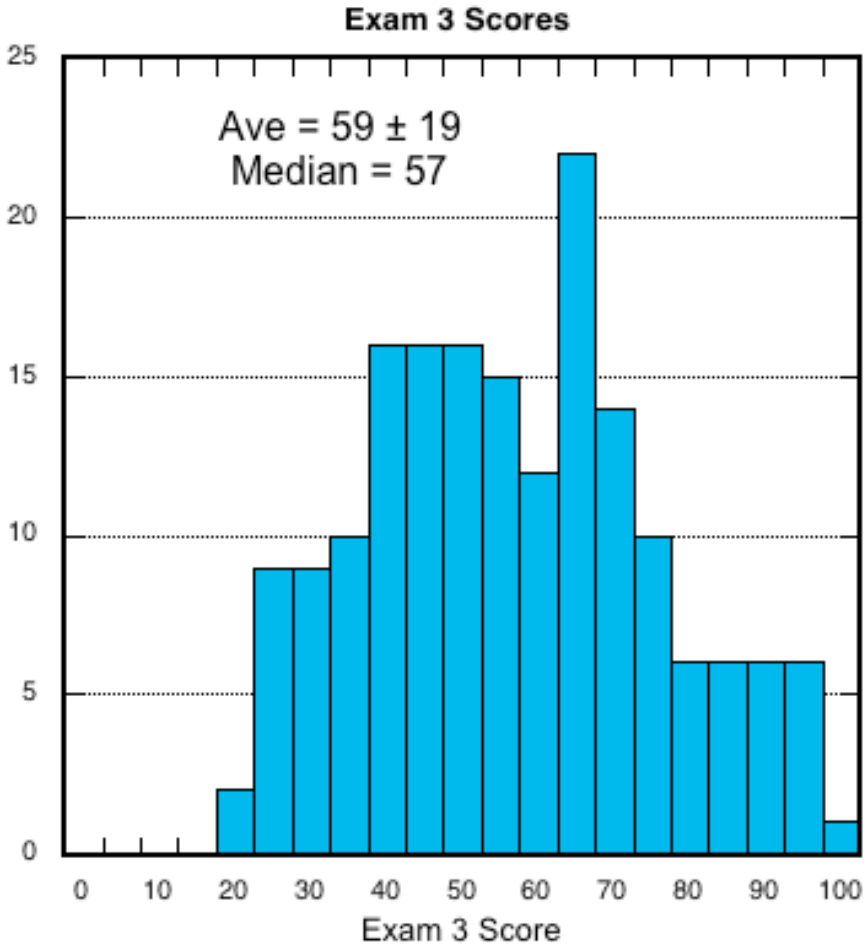

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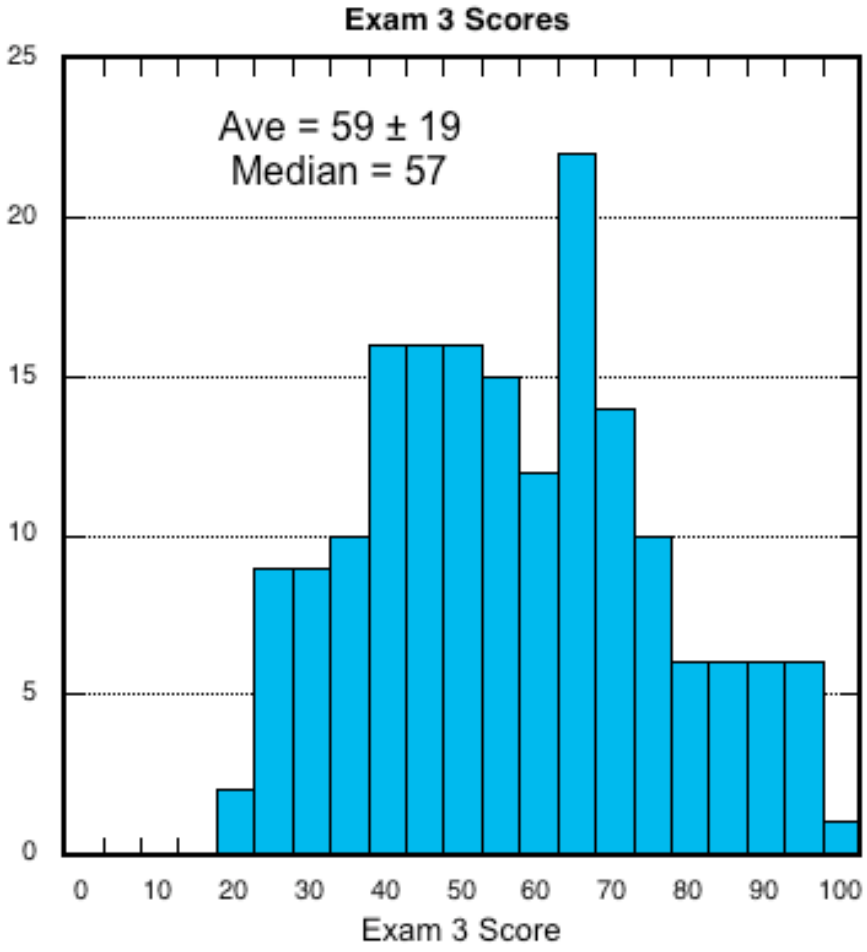

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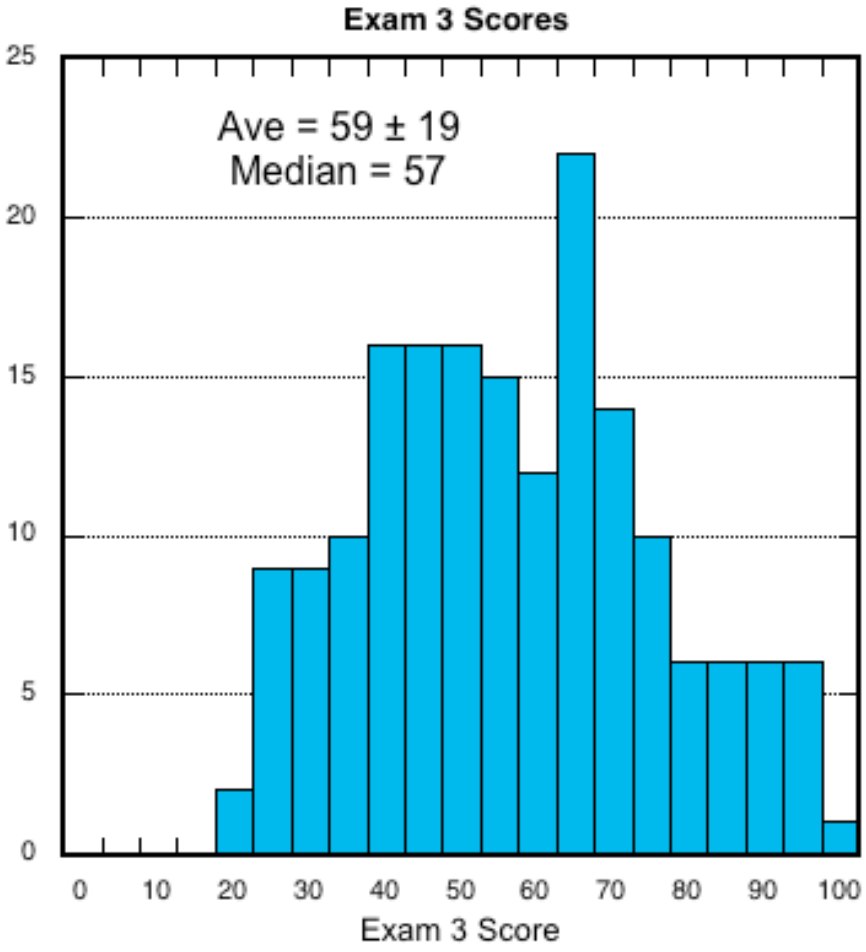
Go back over what you missed.
Understand the questions!!



Energy- Recap

Kinetic: Mechanical – moving car
Thermal – moving molecules
Electrical – moving charge
Sound – moving waves of gas compression and expansion

Potential: Gravitational – the eraser
Chemical – gasoline
Electrostatic – +..- attraction (static E)

1 cal (calorie) = 4.184 J (joules)

1 Cal (Dietary Calorie) = 1000 cal (calorie)

Temperature reflects molecular kinetic energy (thermal)

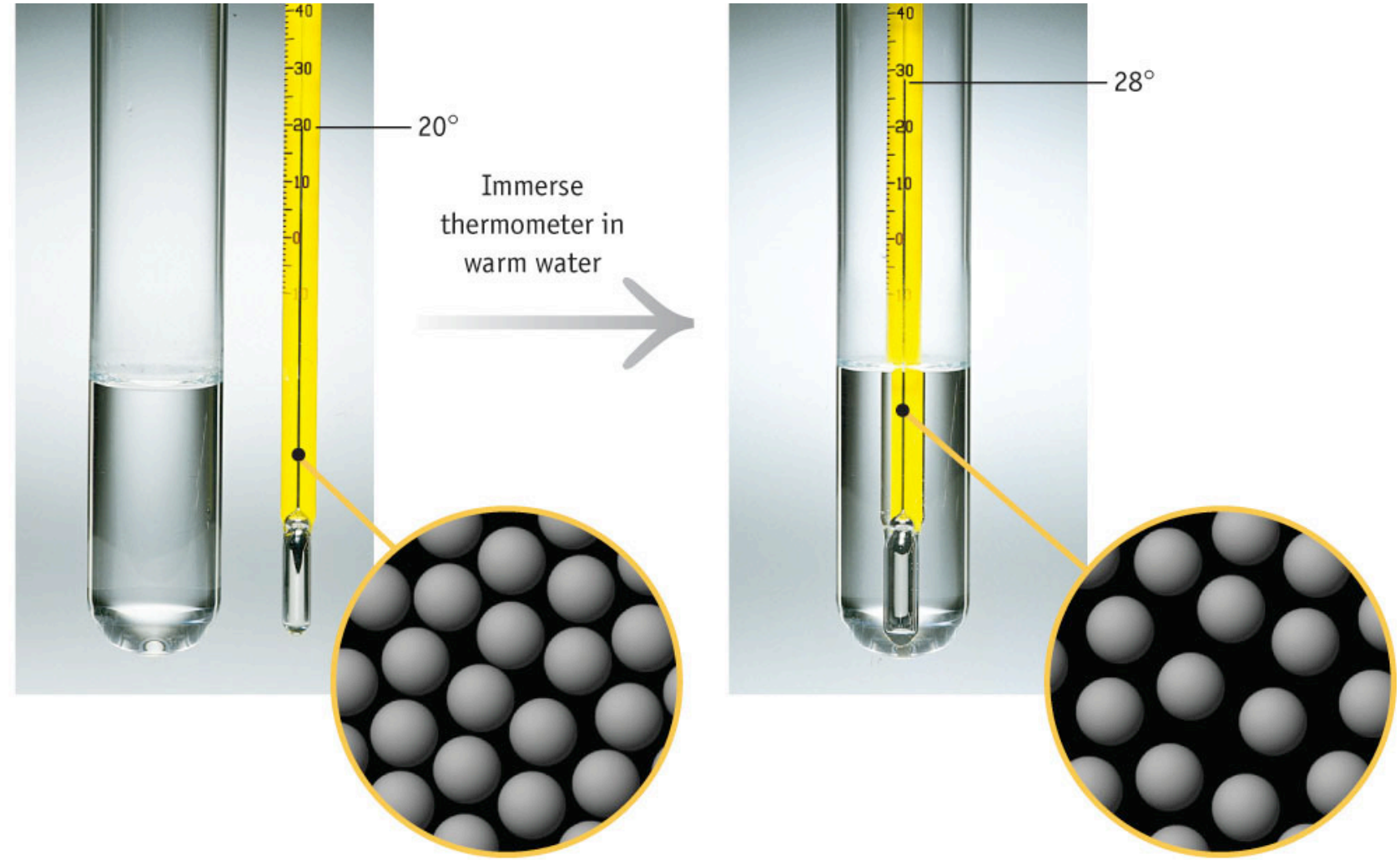


Fig. 5-3, p. 211

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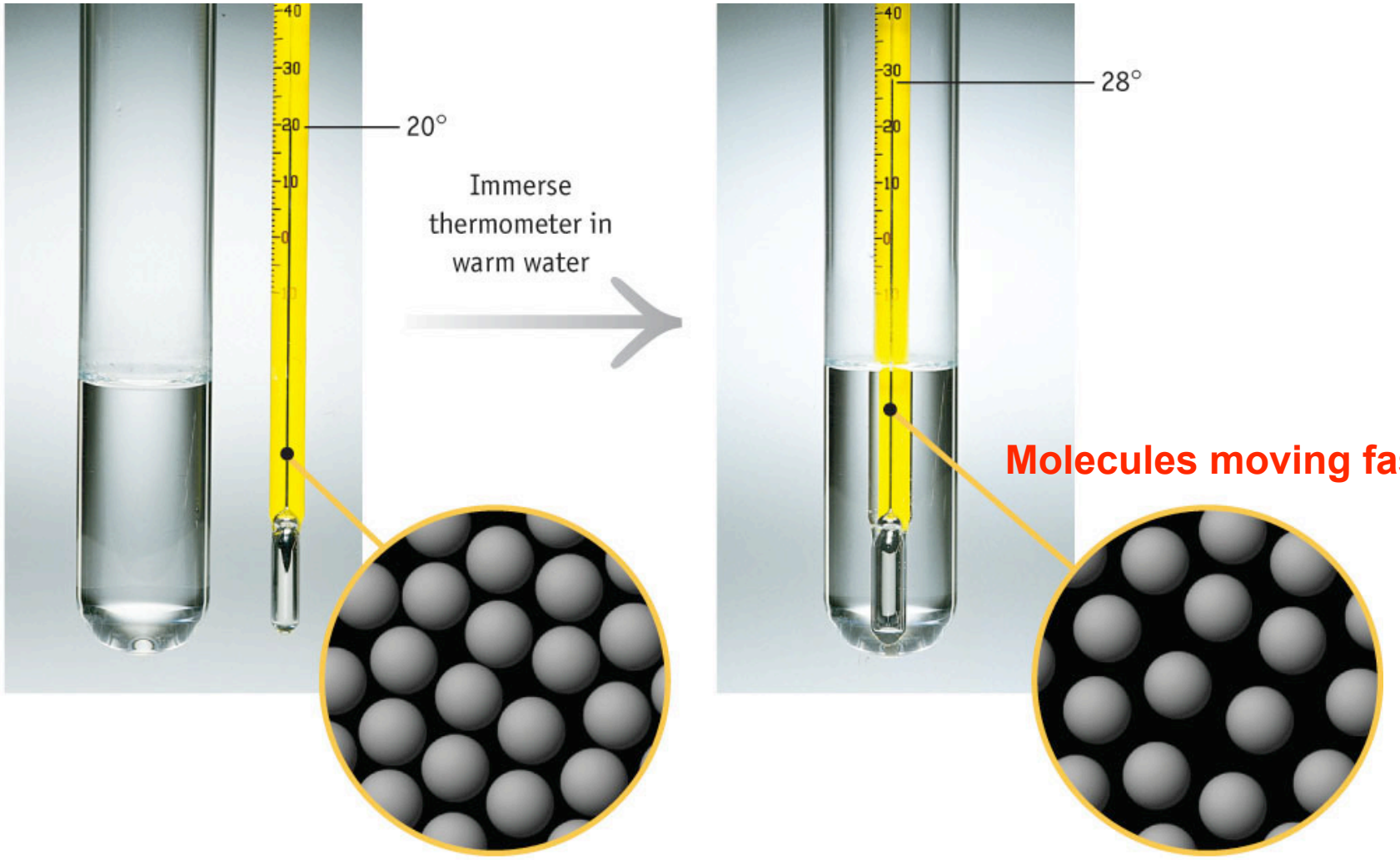

Fig. 5-3, p. 211

The absolute temperature scale (Kelvin)

$$T_K = T_C + 273 \qquad T_C = \frac{5}{9}(T_F - 32)$$

What's special about Kelvin?

1) He copyrighted the name
2) **The scale reflects molecular motion (0=no motion)**
3) Larger numbers reflect better precision

The study of gases

- Little billiard balls with kinetic energy
    - mass and velocity
- Collisions with wall: force on wall
- Add up the collisions: total pressure

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M (He) = 4.0 g mol^{-1}

M (N_2) = 28 g mol^{-1}

M (O_2) = 30 g mol^{-1}

M (CO_2) = 42 g mol^{-1}

M (Ar) = 40 g mol^{-1}

M (Xe) = 131 g mol^{-1}

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Relative to “kT”

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