

### 13.1 Review

#### Completion

Use the completion exercise to check your understanding of the concepts and terms that are introduced in this section. Each blank can be completed with a term, short phrase, or number.

kinetic energy	motion	random	101.3 kPa	far apart
25°C	empty space	collisions	independently	atmospheric

The kinetic energy theory describes the \_\_\_\_\_ of particles in matter and the force of attraction between them. The theory assumes that the volume occupied by a gas is mostly \_\_\_\_\_, that the particles of gas are relatively \_\_\_\_\_, move \_\_\_\_\_ of each other, and are in constant \_\_\_\_\_ motion. The \_\_\_\_\_ between particles are perfectly elastic so that the total \_\_\_\_\_ remains constant. Gas pressure results from the simultaneous collisions of particles of billions of particles with an object. Barometers are used to measure \_\_\_\_\_ pressure. Standard conditions are defined as a temperature of \_\_\_\_\_ and a pressure of \_\_\_\_\_.

#### True-False

Classify each of these statements as always true; AT, sometimes true; ST, or never true NT.

- \_\_\_\_\_ 1. Atmospheric pressure is 760 mm Hg.
- \_\_\_\_\_ 2. The SI unit of pressure is the pascal.
- \_\_\_\_\_ 3. At any given "temperature", the particles of all substances have the same average kinetic energy.
- \_\_\_\_\_ 4. The Kelvin temperature of a substance is directly proportional to the total kinetic energy of the particles in the substance.
- \_\_\_\_\_ 5. Atmospheric pressure increases as you climb a mountain because the density of Earth's atmosphere decreases with altitude.
- \_\_\_\_\_ 6. When particles of a substance are heated, some of the energy is absorbed by the particle and stored in the form of potential energy.

#### Matching

Match each description in Column B to the correct term in Column A.

- |                                |   |
|--------------------------------|---|
| _____ 7. Barometer             | a. An instrument to measure atmospheric pressure                              |
| _____ 8. Kinetic energy        | b. A space where no particles of matter exist                                 |
| _____ 9. Gas pressure          | c. The energy an object has because of its motion                             |
| _____ 10. Atmospheric pressure | d. Results from the force exerted by a gas per unit surface area of an object |
| _____ 11. Vacuum               | e. Results from the collisions of atoms and molecules in air with objects     |