

15 Which statement describes the effect of adding a catalyst to a chemical reaction?

- A** The activation energy, E_a , of the reaction is increased.
- B** The enthalpy change, ΔH , of the reaction stays unchanged.
- C** The frequency of collisions between the particles is decreased.
- D** The kinetic energy of the particles is increased.

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15 The rate of reaction between magnesium and dilute hydrochloric acid is increased by increasing the concentration of the acid.

How does this affect the reacting particles?

	collision rate of particles	proportion of particles with sufficient energy to react
A	increases	increases
B	increases	stays the same
C	stays the same	increases
D	stays the same	stays the same

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19 Which statements explain why increasing the temperature in a reaction involving gases increases the rate of reaction?

- 1 It increases the collision frequency between the gas particles.
- 2 It lowers the activation energy.
- 3 It increases the kinetic energy of the gas particles.
- 4 It increases the number of gas particles per unit volume.

- A** 1 and 3 **B** 1 and 4 **C** 2 and 3 **D** 2 and 4