

## 6.2 Factors Affecting the Rate of Chemical Reactions

Often, controlling the rate of a chemical reaction is as important as having the reaction occur in the first place.

\_\_\_\_\_ is the average energy of molecules.

The more \_\_\_\_\_ molecules have, the higher the \_\_\_\_\_.

When molecules have \_\_\_\_\_ energy, they move around

more, \_\_\_\_\_ other molecules more, and therefore react \_\_\_\_\_.

The \_\_\_\_\_ changes with the temperature.

\_\_\_\_\_ temperature = \_\_\_\_\_ reaction rate, and vice versa.

Sometimes we want slower reactions (ex: \_\_\_\_\_).

Sometimes we want faster reactions (ex: \_\_\_\_\_).

\_\_\_\_\_ refers to how many molecules of a substance exist in a certain volume.

\_\_\_\_\_ is how much solute is dissolved in solution.

\_\_\_\_\_ is measured in mass per unit volume (g/L).

Usually, the \_\_\_\_\_ the concentration of reactants, the \_\_\_\_\_ the reaction occurs.

Since there are \_\_\_\_\_ molecules per unit volume in high concentrations,

there are more opportunities for molecules to \_\_\_\_\_ and react.

Chemical reactions occur when and where atoms and compounds \_\_\_\_\_.

The more atoms and molecules there are to collide, the \_\_\_\_\_ the reaction rate.

Increasing \_\_\_\_\_ increases the rate of reaction.

\_\_\_\_\_ can be increased by creating smaller pieces.

A powdered substance has far more surface area than one large chunk.

The increase in surface area must also be \_\_\_\_\_ for reaction; a powder only reacts more quickly if it is spread into the air instead of \_\_\_\_\_.

Sometimes, increasing the temperature or concentration is not a desirable method to increase reaction rate. Changing these two variables may be impractical or dangerous.

A \_\_\_\_\_ is a chemical that allows a reaction to occur more quickly without actually participating in the reaction itself.

The \_\_\_\_\_ speeds up the reaction rate but does not get used up as a \_\_\_\_\_.

\_\_\_\_\_ often lower the amount of \_\_\_\_\_ necessary to break the bonds in the reactants.

\_\_\_\_\_ are an example of biological catalysts.

A catalytic converter is a device installed in cars to decrease pollution. The catalysts in the device speed up the reactions that change dangerous particles into less dangerous particles. The device has a honey-combed like interior to increase the surface area where these reactions can take place.

- To make a reaction happen quickly:

- ◆ \_\_\_\_\_

- ◆ \_\_\_\_\_

- ◆ \_\_\_\_\_

- ◆ \_\_\_\_\_

- To make a reaction happen slowly:

- ◆ \_\_\_\_\_

- ◆ \_\_\_\_\_

- ◆ \_\_\_\_\_

- ◆ \_\_\_\_\_