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| Occur when bonds are broken | Occur when nuclei emit particles and/or rays |
| Atoms remain unchanged, although they may be rearranged | Atoms often converted into atoms of another element |
| Involve only valence electrons | May involve protons, neutrons, and electrons |
| Associated with small energy changes | Associated with large energy changes |
| Reaction rate influenced by temperature, particle size, concentration, etc. | Reaction rate is not influenced by temperature, particle size, concentration, etc. |

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